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BOOK *of* CACTI

(ILLUSTRATED)

for the

AMATEUR COLLECTOR

NEOBESSEYA SIMILIS

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VOL. 1

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To the Amateur Cactus Collector

Being a lover of cactus, and knowing how hard it is to identify them by name, I was prompted to prepare these few pages for the amateur collector. This book has been simplified as much as possible, and illustrated rather fully with photographs I have taken from the plants in my own collection, with the hope that even those not trained in botany can become better acquainted with the more important cacti and their names. If it proves to be an aid to you in properly naming your plants, I shall feel that it has served its purpose.

It is not always easy for the best trained botanist to properly identify some of the cacti by description, and it may require a considerable amount of your patience to accomplish this end, but I feel that the photographs in this book will greatly help you in your troubles with identification.

This book is not intended as a technical treatise on cacti, but is published with the thought that it may create more interest in cacti if a few of the common varieties can be properly named. Cacti are so varied in form that the amateur collector soon becomes confused and wonders if any one really knows the proper names of the many different Genii and species.

Collecting cactus is very fascinating, but involves a great deal of real hard work. It is quite a feat to bring a plant weighing around one hundred pounds, covered with spines two or three inches long, down a steep mountainside. I must admit that I have never succeeded in getting down with one without a few spines in some part of my body.

I believe I have collected every known variety of Texas Cactus, however, you will notice that there are a few photographs of plants which I have been unable to identify after six years of collecting and studying cactus. During these years I have made a careful search of Britton & Rose, and have also conferred with other well-known cactus collectors in this part of the State. In case any reader happens to know the proper identification of these plants, I will greatly appreciate information to that effect.

In the following pages I will try to give the physical structure of cactus, how to prepare soil, care for the plants, combat insects, etc.

Physical Structure of Cactus Plants

To understand the requirements of any living organism it is really necessary to study at least briefly its construction. The difference between the cactus and other plants is its ability to absorb water and hold it through the dry periods of its native land. To do this, nature has changed this plant's body to fit the requirements of its environment.

When any plant receives too little water it usually drops its leaves, because leaves are the means of allowing the sun to absorb the plants excess moisture. The cactus has no leaves, but is composed of thick stems, usually shaped in a cylindrical or ovoid form so that the plant exposes to the sun as little skin as possible.

These stems, or bodies, are filled with a mucilagenous fluid and with pulp, which help to conserve the moisture the plant absorbs from the heavy night dews of the desert and mountains, and the moisture of the infrequent showers. The natural root growth extends around the plant in a large network of surface roots to absorb food and surface moisture. The plant has deep roots also, to hold it in a stationary position.

Cactus plants are like tough skins filled with watery pulp which absorb rather than perspire. Until its skin wrinkles and looks shrunken the plant is not actually in need of water.

It is better to place cactus plants in sun and air, to cause as much evaporation as possible. But they will exist in dry and even darkened apartments if not watered often. Indoors they should be sprayed to remove the dust, rather than watered. Watch your plants very closely. Too much moisture sometimes gives them a green, fat look, which is often mistaken for health, but which is really a dropsical condition preceding rot.

Natural Environments of Cactus Plants

Cacti are divided into two territorial groups: those whose origin is the desert, and those coming from the tropics. Their treatment is almost the same, except that tropical plants—euphorbias and cerei, mostly—can stand more moisture and less drainage, while desert plants require plenty of sharp, clean sand and frequent sprayings rather than soakings. The damp, hot air of a conservatory, with subdued light, agrees best with these tropical plants.

In its native state, different classes of cactus grow in entirely different surroundings. First you will find plants growing in the shade of desert bushes. It may be interesting to know that ninety per cent of these plants grow on the south side of the bushes, and hunters are often guided in their directions by these little plants on cloudy days. Then you will come to the mesas, or barren flats at the foot of the mountains and find an entirely different variety. The plants which grow on the sides of the mountains are different from those growing under the desert bushes and on the mesas. After collecting cactus for a few years you can tell by the rock formation just what kind of cactus you are likely to find on the mountains. It is a strange fact that you can search for hours on one mountain without finding a single plant, and a mountain not a mile distant, with similar surroundings, will be literally covered with plants.

How to Plant Cactus in Pots and Rock Gardens

Be sure your pots are clean and sterilized. The pots should be large enough to provide adequate food for your plants. The size may be judged by the plant growth you are providing for. For a small delicate, slow-growing plant, a pot two inches wider than the plant's body is adequate; but for a fast-growing euphorbia or cereus, a large pot to start with is best.

Examine the roots of the plant, and cut off all bruised and dead parts. If any of the roots are extra long, cut them back to within two inches of the body of the plant and allow to dry thoroughly before planting. This is very important.

Place in the bottom of the pot enough broken pottery or other coarse material to insure drainage, taking care that the hole in the bottom is not closed or clogged. Then fill the pot three-fourths full of a mixture of leaf-mould and sand, spreading the roots of your plant in the soil in as natural a position as possible; then more soil with added sand, so that the base of the plant will dry quickly when watered.

Leaf-mould selected for planting cactus should be taken from well-drained places on hill-sides, as soil found in low places is too acid. Do not use leaf-mould from oak trees, as its action also is acid. Soil should not come from places inhabited by animals, on account of infecting the plants with disease germs. To be absolutely sure of preventing infection, the prepared soil should be baked in an oven. To fertilize the mixture, very old manure may be used only for the rank-growing plants. Thoroughly disintegrated bones make the best general fertilizer, with some charcoal added. Most of the Cephalocereus need some lime mixed with the soil.

Sand used in this mixture should be coarse, sharp, and free from clay or anything to cause it to clog. If the sand is red or yellow, it should be washed until the water is clear. The mixture should be two-thirds leaf-mould and decayed bone to one-third coarse clean sand for desert cacti, and three-fourths leaf-mould to one-fourth sand for the tropical kind.

These same instructions should be followed in planting cacti in rock gardens. However, the potted plants may be placed in the rock garden in the summer and removed to a protected house in winter.

The best place for rock gardens in rainy locations is under the eaves of the house, where the amount of watering can be controlled. However, if the rock garden is elevated about a foot and provided with drainage, the plants will do better out in the open in most localities during the summer. In localities where it rains often during the winter, would be much better to cover the bed and keep it dry, as plants kept dry will stand the cold better and bloom in the spring.

There are very few varieties of cacti that will stand outdoor treatment in the winter except in their native desert, where the cold is sometimes very severe. Plants in the desert can survive extreme cold because they contain so little water, whereas in less dry climates the water in the plants freezes and then the plant dies.

How to Water and Care for Cacti

The roots of these plants should never be allowed to remain absolutely dry for any length of time, especially in hot weather, else the roots will die. The greatest danger, however, comes from the desire to keep the soil saturated. Cactus plants are not equipped to refuse excess water or to throw it off when it is forced upon them, the pulp within is like a blotter, and excess water causes decay which is quick-acting and deadly.

So the proper care is fresh air, sunshine, good soil with ample drainage, and enough—but not too much—water. In the winter less water is needed, because then the plant's growth is very slow, almost dormant. But when the air and sun are hot and the plant is growing, a good spraying over the plant's body every night, with a thorough soaking every ten days or two weeks, provides sufficient water. A rather dry winter makes the plant bloom better in the spring, because vitality has been stored up during the long period of rest. Watch the plant closely—it will tell you how it is doing better than anybody can. When the center at the top of the plant looks good and in a growing condition and the older part is tough and firm, let the plant alone. If your plant does not grow the first year, examine the root condition by turning the plant carefully out of its pot. Is its drainage good? Soil good? Soil damp? Do the roots look clean and healthy? Any knots on the roots? If there are knots on the roots, cut the roots clear back to the plant, or if it is a tall cereus, take a hack saw and saw it off bove the roots and re-root the plant. You will then have a healthy plant. Be sure to use new soil.

Do not spray cactus plants while they are hot, as that would be likely to cause scalding. Remember, spraying, when properly done, takes the place of the night or early morning dew of the desert.

Diseases and Pests

Due to the succulent structure of the cactus, its greatest disease enemy is rot. If this condition starts in the root its outward appearance comes too late for the plant to be saved. If rot comes from a cut or bruise on the body of the plant, the remedy is to take a sharp knife and cut out all the rot, sprinkle with powdered charcoal or lime and expose to the hot sun until healed over. Do not water, as it will cause the rot to spread.

There is a purple or blue bore worm that sometimes gets in cactus. The presence of these pests is sometimes indicated by worm dust, but more often by white or yellow spots on the plants. The worm will eat to the outside skin of the plant, then turn and go back, leaving a spot on the skin. Break the skin where the spots appear, immerse the plant in lime water for 30 minutes, or make a strong solution of "Destruxall" and fill the hole with an eye-dropper. This will bring the worm out and he will die. Destruxall will also kill scale or mealy bug by making a solution slightly stronger than the directions on the package, about 3 teaspoonfuls to a gallon of water. This will not stain your plant, or injure young growth or buds. I use it altogether for fighting the little black hoptails that feed on new growth. These pests are so small that they cannot be seen unless you look very closely, but will often stop the growth of a plant.

Genus Ancistrocactus

This genus forms a very small group of plants, all being native to Old Mexico with the exception of two species which are found in Texas. All members of this genus are globular to oblong in shape, dark to olive green in color and bearing hooked spines as well as straight.

1. **Ancistrocactus brevihamatus***—This is a West Texas variety that is seldom seen in collections. Rather cylindrical in form, shiny green body, short, stiff, sharp, hooked spines of gray and brown color. The spines are borne from the tubercles along the side of the plant with straight upstanding spines at the top. The flower is rose colored.

2. **Ancist. scheeri***—This is the South Texas variety growing in mesquite clumps along The Rio Grande River. The plant is from 3 to 6 inches tall, shiny green body, gray and brown, sharp hooked spines. The flowers are greenish-yellow.

Genus Ariocarpus

This genus of plants is biscuit to oval in shape, low growing and usually assuming the coloring of rocks surrounding them on the hill tops. All species of this genus are tuberous rooted. This group of plants is very hard to find on the rocky hill tops.

6. **Ariocarpus fissuratus***—The living rock from the mountain tops of West Texas. This is the only species of this genus known to grow in Texas. Flat growing, star-shaped, dark moss-green colored body. There is no spine structure on this plant, only small tufts of hair in axis of tubercles. The tubercles lay flat and in star-like circles. The flowers are rose pink. Blooms in September and October.

7. **Arioc. furfurraceus***—From old Mexico. Dark green, star-shaped body. Flower is purple.

8. **Arioc. kolschoubeyanus***—From Old Mexico This is the smallest species of this genus. This plant forms a head on top of a carrot-like root; the head is flat, round and grayish-green in color. The V-shaped stems lay flat on top of the plant in star-like circles. The flower is purple.

9. **Arioc. lloydii rose**—Very much like Fissuratus, only the stems seem to be larger and more wrinkled. The flower is purple.

10. **Arioc. retusus***—From Old Mexico. This is a distinctly star-shaped species. The stems are large, pointed, and dark green in color. The flower is white.

11. **Arioc. strobiliformis**—From Old Mexico. This species is a very peculiar plant, the stems looking very much like a pine burr with a tuft of stiff hair at the tip of each stem. The flower is purple.

12. **Arioc. trigonus***—From Old Mexico. Very similar to Retusus only having heavier stems which are more or less blunt at tips. The flower is yellow.

Genus Astrophytum

This is a variable group of plants all of which are native of Old Mexico with the exception of Asteria, which is found in a small district of South Texas.

15. **Astrophytum asterias***—From Old Mexico and a small area along the Rio Grande River in South Texas. Round, oval-shaped, grayish-green body, which is divided into sections with spots or tufts of hair on top of ridges. This plant reminds you of Sea Urchins you find on the beach. The flower is large, yellow with red throat.

16. **Astroph. capricornis minor***—From old Mexico. An odd plant with from six to eight wedge-shaped ribs. The ribs bearing flat, flexible, curly, white or gray spines. The flower is yellow.

17. **Astroph. cap. mayor***—From Old Mexico. Similar to above species only with stronger and longer spines. The flower is yellow.

18. **Astroph. cap. aureus***—From Old Mexico. Similar to minor and mayor in structure, but with more small, dark-colored spines.
The flower is yellow.

19. **Astroph. cap. var. crossispinus mayor**—From Old Mexico. Taller growing than the above species. The ribs bearing large, flat, white or grayish-colored spines which curl around the plant. Flower is yellow.

20. **Astroph. cap. var. crosi. minor***—From Old Mexico. Same as above but with smaller spines. The flower is yellow.

21. **Astroph. cap. senilla***—From Old Mexico. Body similar to above plants, but has fine, hair-like, curly white to grayish-colored spines which curl around the top of the plant. The lower part of the plant having very few or no spines. The flower is yellow.

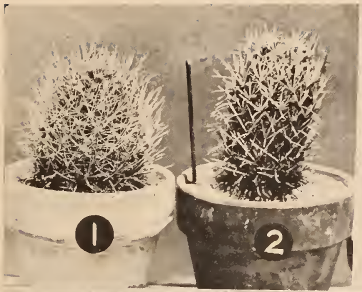
22. **Astroph. myriostigma coah.***—The rare Bishop's Cap from Old Mexico. Four to eight ribs with no spine structure. The body is grayish in color, giving the plant the appearance of having been carved out of stone. The plant looks more like stone or rock than a living plant. The flower is yellow with red throat.

23. **Astroph. ornatum***—From Old Mexico. This species is the most showy of the Astrophytum genus. Six to eight ribs, straight or spiraled, bearing clusters of yellow spines along the margins. The body of the plant is green with beautiful white speckled designs worked over it. They appear as if they had been painted by hand. The flower is yellow with red throat.

24. **Astroph. myriostigma quadricostata**—From Old Mexico. Similar to Myriostigma, but with only four ribs. The flower is yellow.

25. **Astroph. nuda***—From Old Mexico. Same as Myriostigma, but seems to be double or twin plant. The flower is yellow.

*Number pictured.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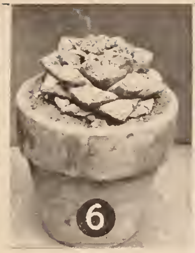
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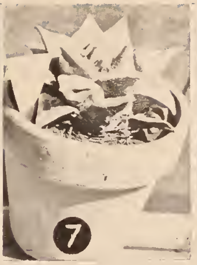
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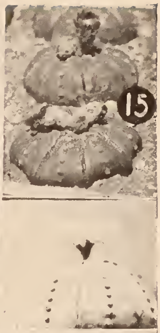
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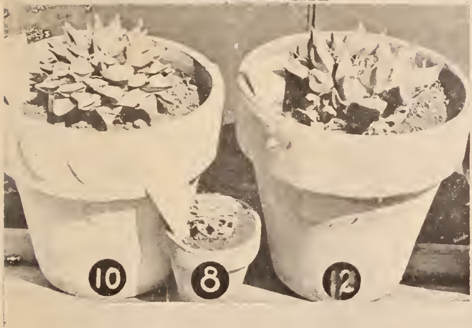
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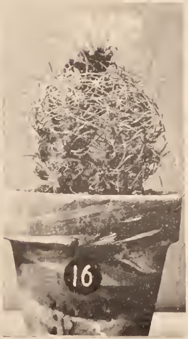
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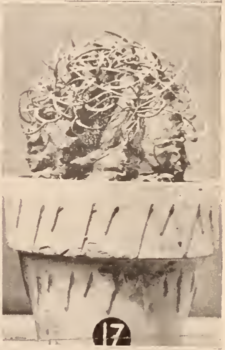
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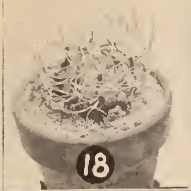
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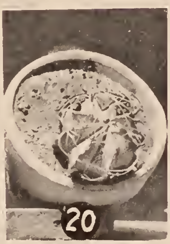
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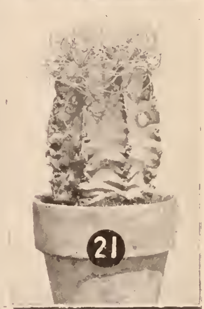
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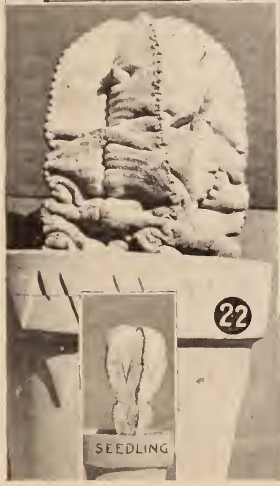
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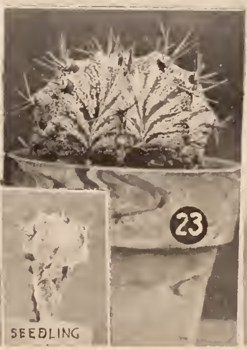
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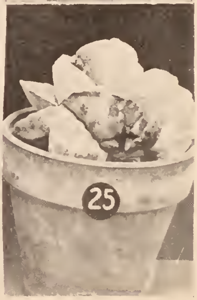
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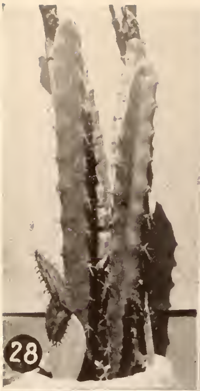
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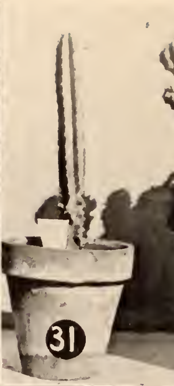
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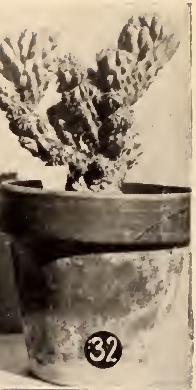
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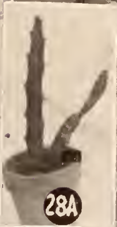
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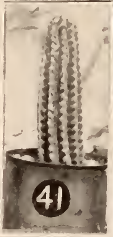
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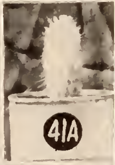
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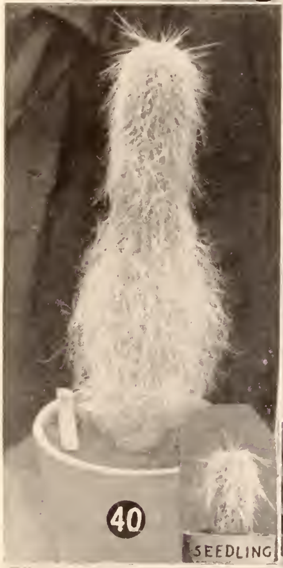
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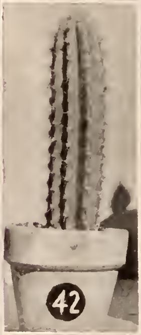
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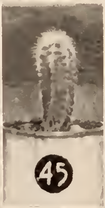
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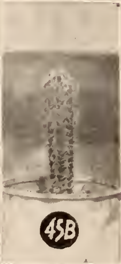
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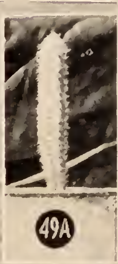
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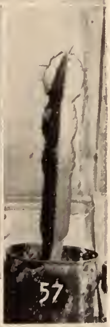
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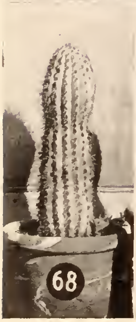
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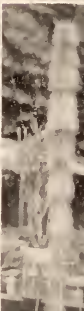
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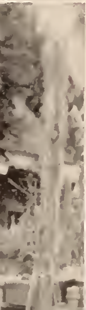
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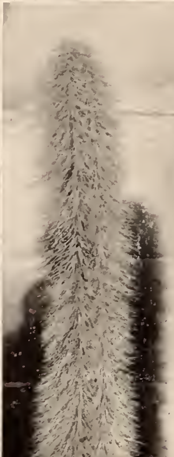
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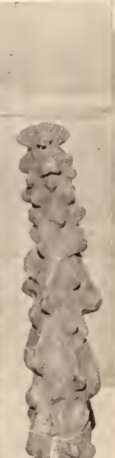
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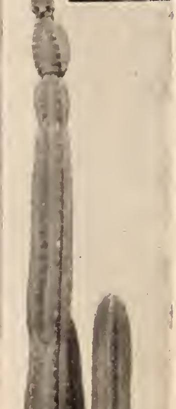
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Genus Cereus

This genus is divided into many species and sub-tribes. They are all more or less tall-growing and mostly branching types of cactus. Some species in this genus are the largest of all cactus, sometimes attaining a height of 40 or more feet.

27. **Acanthocereus honduriensis**—Native of South America. A very quick-growing, large tall cereus. The three to six angled, glossy green branches bear small clusters of short, stiff spines.

28. **Acan. pentagonus***—This is one of two cereus that is native to Texas. It is found in large clumps along the coast line of South Texas. Three to six angled bright green branches which bear white or grayish-colored spine clusters along the margins of the ribs. This species is variable and clustering in habit, usually forming large clumps and growing to a height of 10 to 15 feet. This is a night bloomer with large, pungent white flowers.

28a. **A pentagonus***—From Florida. Similar to above only it is more slender and spine clusters farther apart on ribs. Dildoe is common name in Florida.

29. **Beagerocactus emoryii***—Native to S. W. United States. This is a tall growing, branching type cereus. Round with many small ribs bearing closely set clusters of yellow spines. See picture on next page.

30. **Carnegiea gigantea***—This is the giant cereus from Arizona. Many ribbed, dark to olive green body, with strong, stiff spine structures along the margin of the ribs. This is one of the largest of the genus cereus, obtaining a height of 30 to 40 feet. The older plants usually branching. The flowers are a beautiful waxy white.

31. **Cereus peruvianus***—A beautiful tall growing, green or bluish bodied cereus from the mountains of Peru.

32. **C. peruvianus monstrosos***—Monstrosus type of above plant.

Cephalocereus—A sub-tribe of the genus cereus. This is the old man or hairy type of columnar cereus and produces some of the finest and most popular cactus.

40. **Cephalocereus senilis***—The famous old man cactus from Mexico. A tall growing cereus completely covered with long white hair over sharp, stiff spines. This is one of the most popular of all cactus.

41. **Ceph. palmerii*** — From Old Mexico. Another of the tall growing cereus which bears both spine structures and fine white wool.

41a. **Cept. dyboushis***—Similar to No. 40 only it does not grow quite so large and looks like a ball of cotton instead of white hair, with sharp spikes protruding from the cotton.

42. **Ceph. deringii***—From Florida. This is tall-growing with yellow spines. Clustering in habit, usually forming large clumps.

44. **Ceph. chrysacanthus**—Commonly known as the yellow torch cactus. Tall, six to eight ribbed, pale green bodied with yellow spines and wool along the ribs.

45. **Ceph. cometes***—Angular, blue bodied, columnar type cereus, bearing both spines and white wool. The picture is of a seedling.

45b. **Ceph. phaeacanthus***—Very much like cometes but not as much wool along ribs. The picture is of a seedling plant.

46. **Ceph. exerans.**—Another large growing columnar cereus. Green bodied, few ribbed, weak spined.

47. **Ceph. royeni**—Green, many ribbed, columnar cereus, having both spines and fine hair along margins of the ribs.

48. **Ceph. hoppenstedtii**—Short, hairy giant with white spines.

49. **Ceph. leucocephalus**—Columnar cereus from Old Mexico. Bears long, wooly, white hair.

49a. **Ceph. smithianus***—Another cereus which bears both spines and white hair.

50. **Cereus bolivianus**—A large-growing, dark green, brown spined cereus from Bolivia.

51. **C. formosus monstrosus**—Found in very small area in Old Mexico. Columnar type cereus covered with knobs and bumps rather than ribs.

52. **C. hildemannianus** — A large, branching, blue-green cereus from Old Mexico. This is a night bloomer with large creamy white flowers.

53. **C. hexagonus**—Large, columnar, hexagon-shaped, spineless cereus.

54. **C. jamacaru***—Large, columnar, branching, blue-green cereus with yellow spines.

55. **C. lepidotus**—Tall-growing, blue-green body.

56. **C. stenagonus**—Tall, branching type cereus.

57. **C. validis***—Large, columnar, four-sided, bluish-colored cereus.

58. **C. herzogianus**—A small tree-like cereus with yellow spines. Native of Bolivia.

59. **Cleistocactus baumannii** — Forms clumps of branches similar in size and shape to N. serpentinus. The short, closely set spines are golden brown.

60. **Eriocereus tephracanthus** — Columnar, branching, white spined cereus from Bolivia.

61. **Haggeocereus choicensis**—The orange torch cactus. Stout columns covered with closely set orange colored spines.

62. **H. pacalaensis**—A columnar cereus from Peru. Forms clusters of upright columns branching from the base. Has closely set yellow spines.

63. **Lemaireocereus chichipe**—A tall cereus from Old Mexico. Round furrowed branches, powdered blue-white.

64. **Lem. dumortieri**—Large, six to eight ribbed cereus with yellow spines closely set along margin of the ribs.

65. **Lem. griseus**—Large, few-ribbed, gray-branched cereus from Old Mexico.

66. **Lem. hollianus**—Large, freely branching cereus. Round fluted branches with brown spines.

67. **Lem. stellatus**—The star cereus. Large columnar branches with the spines arranged in star clusters.

68. **Lem. thurberi***—A large, many-ribbed, columnar cereus from Arizona and Old Mexico. Branches freely from the base forming large clumps. The spines are brown. The flower is greenish-purple.

69. **Lem. weberi***—Very large growing, freely-branching cereus with stout, stiff spike spines. A beautiful plant from Old Mexico.

70. **Leptocereus quadracostatus**—Tall-growing, four-sided cereus.

71. **Lophocereus australis***—A tall-growing cereus from Old Mexico. Slender branches with six to ten angles. This species sometimes reaches a height of 25 feet with hundreds of branches arising from a single trunk.

72. **Lop. gatesii**—The fluted branches in this species is rounder, bearing more and stronger spines than in the other species of Lower California.

73. **Lop. sargentianus***—A slender intermediate form between Australis and Schottii. Native of Lower California.

74. **Lop. schottii***—A large, tall-growing cereus from Arizona and Old Mexico. Four to seven angled with long, slender brown or greyish spines very closely set along the margins of the ribs. You will notice from the picture that the small seedling does not have the long spines that appear when the plant is older.

75. **Lop. schottii monstrosus***—The habit and growth of this plant is similar to schottii but the ribless branches are covered with smooth, green-skinned irregular knobs and bumps. This species is from Old Mexico. Sometimes called the Totum pole.

76. **Machaerocereus eruca**—The creeping devil cactus from the shores of Magdalena Bay. Grows prostrate on the ground, dying behind as the head advances. It is three to five inches in diameter and ten feet or more in length.

77. **Machaerocereus gummosus***—A strongly angled large-branched cereus from Old Mexico. The spines of this plant are stiff and dagger-like.

78. **Myrtillocactus cochal***—A much-branched form similar to geometrizana. Dark green branches and stiff, stout, dagger-like spines. From Old Mexico.

79. **M. geometrigans***—Tall-growing, angled branching, blue-bodied cereus from Mexico.

80 **Oreocereus celsianus***—An Old Man of the mountains from high in the Andes. Columnar cereus with white silky hair over highly colored spines. Picture is of seedling.

81 **Oreo. trollii***—Another of the Old Man from the Andes. Columnar with white hair over red spines. Picture is of seedling.

81a **Oreo. fossulatus***—Another of the Old Man type cereus with white hair over spines. Picture of seedling.

81b. **Oreo. bruennowii*** — Another of the Old Man. Picture is of seedling.

82. **Pachycereus chrysomallus**—Green bodied, strongly tubercled, with yellow spines.

83 **Pach. marginatus***—The organ pipe cactus from Old Mex. The ribbed, columnar branches grow in upright clusters resembling an organ pipe. The ribs bear very short, stiff spines. This plant is very variable as pictures show.

84 **Peniocereus greggii***—One of two night blooming cereus native to Texas. Stems are dull, gray, green, and often resemble dead branches. The spines are very short and stout. The root is tuber or carrot shaped as shown in the picture. This plant is able to store an immense amount of water in the tuber root which enables it to stand long periods of dry, hot weather. The root weighs from 5 to 25 pounds, sometimes much more. The flower is large for the plant and has a pinkish tint.

85. **Trichocereus bridgesii**—Forms clusters of short, sparcely spined, columnar branches.

86 **Trich, candicans** — Forms clusters of columnar branches bearing yellow spines.

87 **Trich. chiloensis**—Forms clusters of short, thick stems crowned with very large white flower.

88 **Trich. fascicularis**—Green columnar cereus with an abundance of white spines.

89 **Trich, lamphrochlorus**—Forms clusters of short, stout, green branches.

90 **Trich. pachanoi**—Rounded ribs. Very few short spines. Immense flowers.

91 **Trich. pasacana**—Forms clumps of very heavy, strongly spined branches.

92 **Trich. schickendantzii***—Forms dense clusters of short, stout fluted branches freely covered with short yellow spines.

93 **Trich. spachianus*** — The white torch cactus. Forms clusters of tall, fluted, columns covered with short, brown spines. Famous for the large day blooming flowers.

93a Similar to above only has deeper ribs, not so many spines, and spine clusters are further apart. This plant has never clustered for me.

94 **Trich. strigosus** — Very short branches, yellow spines and white flowers.

95 **Lem. benecki***—Tall-growing cereus with gray powdered body which is almost round with notched ribs and few spines.

96 **Pach. pringlei***—Tall heavy bodied cereus from Old Mexico. Many ribbed with stiff spines along margin of ribs.

97 **Lem. hystrix** — Tall-growing, branching cereus. Six to eight ribs bearing stout, spine structures along the margins. Native of West Indies.

98 **Lem. treleaseii**—Tall, freely branching cereus.

Night Blooming Cereus

For your convenience, I am listing a group of climbing or clambering night blooming cereus. The branches of all this group are rather slender and some cling by aerial roots. The flowers are very large and showy.

105 **Harrisia bonplandii** — Sparcely spined, strong branched, large white flowers.

106 **H. brookii**—One of the stouter ones of this group, forms a tree-like plant with fluted branches.

107 **H. fragrans**—Forms clusters of upright branches similar in shape and size to N. serpentinus. Yellow spines and large pink flower.

108 **H. martini** — Round clambering branches, few spined. Many large flowers.

109 **H. tortuosa**—Round clambering branches, freely spined. Many large flowers.

110 **Hylocereus monacanthus**—Forrest cereus. Slender winged branches. Undulating.

111 **H. ocamponis**—Three angled, blue branches, undulated edges, very large flowers.

112 **H. undatus**—Queen of the night. An excellent climbing cereus for partly shaded places. Usually three broad, thin angled, spineless ribs with undulating margins.

113 **Nyctocereus serpentinus***—Slender, fluted columnar branches covered with fine brownish spines.

114 **Selenicereus coniflorus**—Slender climbing cereus bearing white flowers a foot long.

115 **Sel. donkelaarii** — A species with whip like branches bearing clusters of fine spines.

116 **Sel. hondurensis**—Slender, tall growing. RARE.

117 **Sel. macdonaldiae**—Slender, nearly square branches. One of the largest flowered species of the whole cactus family.

118 **Sel. pteranthus**—A free bloomer with large, sweet scented flowers.

119 **Sel. spinulosis**—Square to pentagonal branches freely supplied with aerial roots. White flowers.

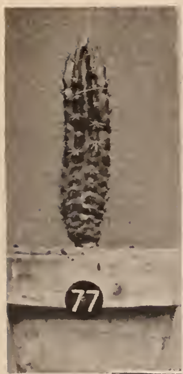
120 **Weberocereus panamensis**—A winged, gray-green branched climber. White flowers. RARE.

121 **Sel. nyctocalus***—Square, dark green branches, climbing, many aerial roots. Large creamy white flowers. Often called the "Queen of the Night."

123 Baby seedling of cereus peruianus monstrosus.

130 **Aporocactus flagelliformis***—The rat tail cactus. Many long, slender, trailing branches covered with short brownish colored spines. Produces an abundance of beautiful pinkish colored flowers. Does better when grafted. Day bloomer.
Picture top right hand corner.

131 **Chamaecereus sylvestrii** — The peanut cactus. Many short, trailing branches covered with whitish colored spines. The branches form compact clusters and produce an amazing number of scarlet colored flowers. Does better when grafted. Day bloomer.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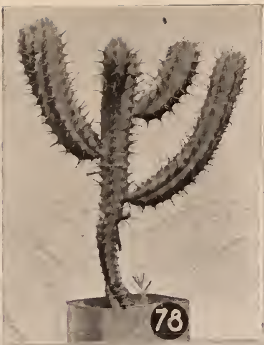
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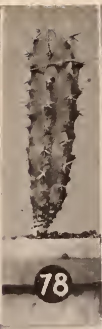
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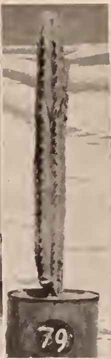
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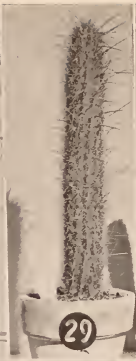
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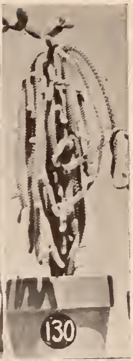
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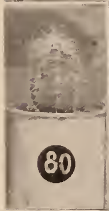
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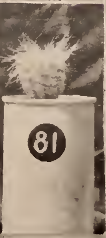
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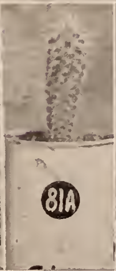
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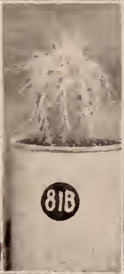
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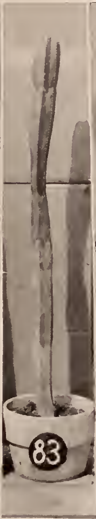
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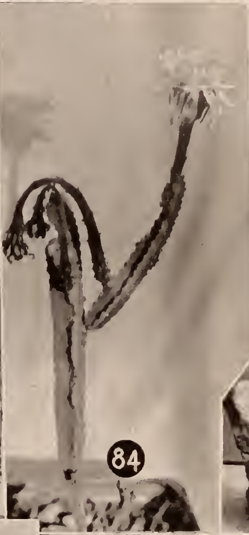
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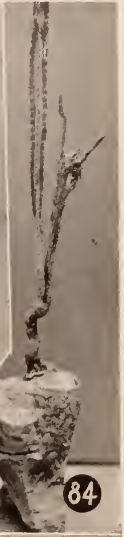
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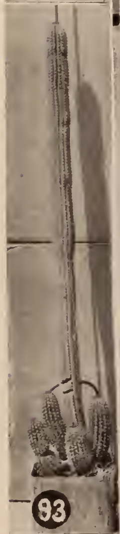
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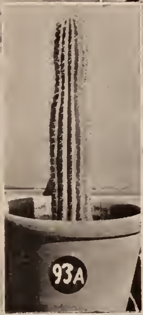
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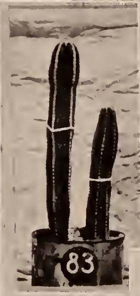
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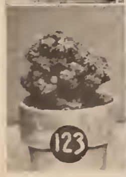
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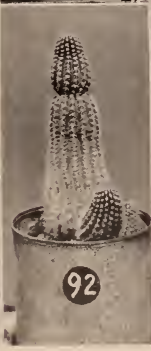
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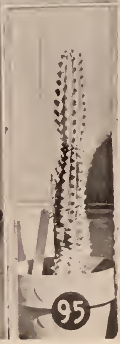
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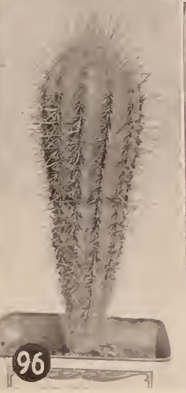
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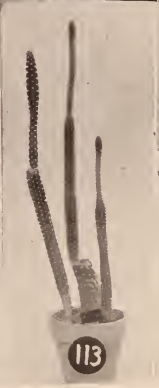
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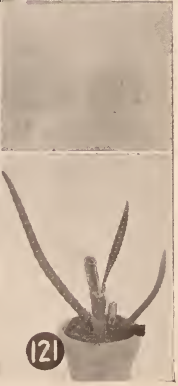
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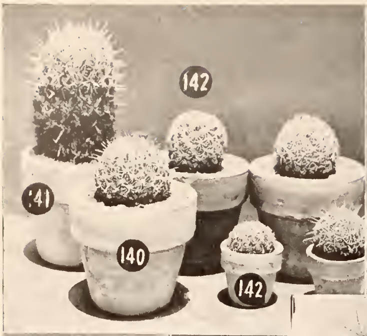
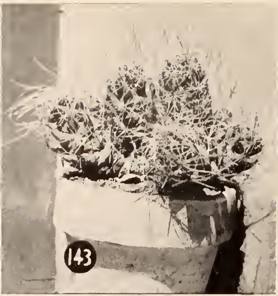
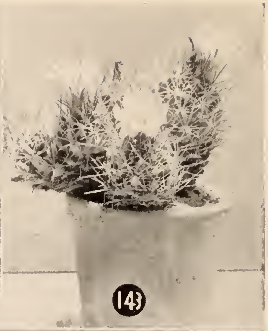
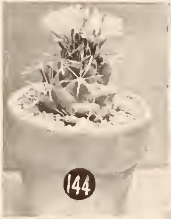
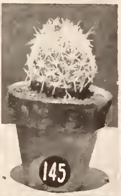
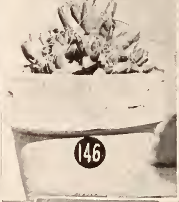


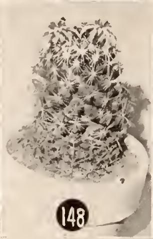


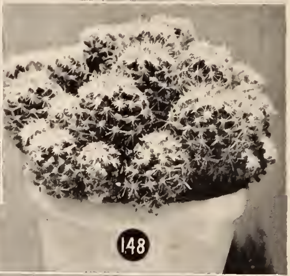


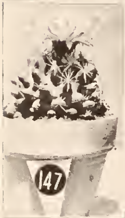


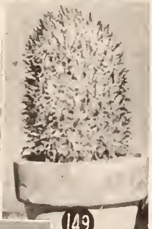


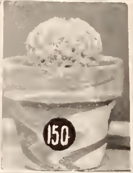


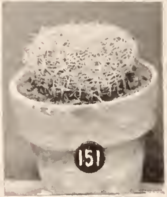


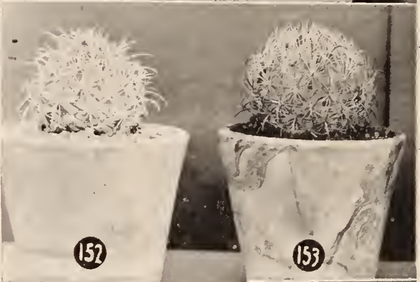


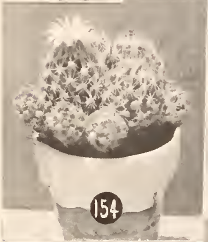


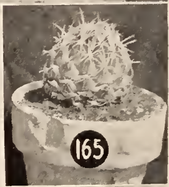


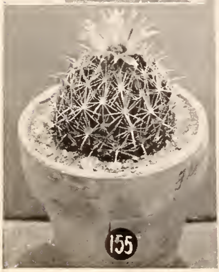


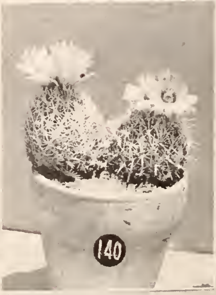




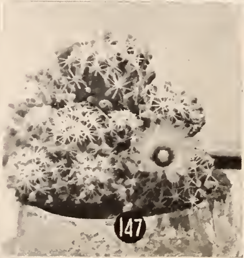




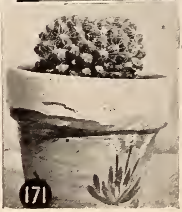




#140 *IN BLOOM*



#147 *IN CLUSTER*
WITH YOUNG PLANTS
LOOKS LIKE A
DIFFERENT VARIETY.



Genus Coryphantha

A group of conical to oblong plants all bearing short, stiff, spines on grooved tubercles and flowering at the apex of the plant.

140 **Coryphantha Echinus***—A globular to cone shaped species covered with tightly appressed white spines, and with spikes at intervals. The flower is large and yellow with red center.

141. Cory. **echinus species***—This plant is similar to above but seems to make much larger growth. Both plants are native to West Texas.

142. Cory. **Pectinata***—This species is very closely related to echinus in shape, the only apparent difference being that it has no spike-like central spine. In my opinion, it is only a young Cory. echinus plant.

143. Cory. **Macromeris***—West Texas species. This plant is a mass of heavy tubercles topped with spine clusters. An abundant bloomer. The flower is large and wine-purple in color. There seems to be two varieties as pictures show.

144. Cory. **Muehlenpfordtii***—A very attractive species of this genus from West Texas. Probably one of the rarest of the Coryphantas. Has long tubercles, each tipped with stout, showy, spine structures. Blooms from about the first of June until September. The flower is orange tinted with red. This species puts on a large green seed pod from 2 to 3 inches long.

145. Cory. **neo-mexicana***—From West Texas. Globular to short oblong, with body of plant hidden under mass of white spines. Flower is purple.

146. Cory. **Runyonii*** — From South Texas. Very similar to Macromeris, only with longer tubercles and darker spines.

147. Cory **Sulcata***—From Central and East Texas. This species grow solitary or clustering and is rare. You will notice in the two pictures of this species the single and clustering how the young plants differ from the older ones.

148. Cory. **vivapara***—From Texas to Kansas. This species is round in form, the spines are whitish in color, turning red in the fall. Grows solitary or in clusters, the clusters being sometimes very large. The flower is pinkish. Pictures show both single and clustering plants.

149. Cory. **deserti***—From California and Arizona. Oblong plant, bearing gray and black spines with white tips. The flower is pink. This plant commonly called the Fox Tail cactus. Requires very little water.

150. Cory. **Aggregata***—From Arizona. This is the most common species of this genus, often occurs in dense clusters of fifty or more heads piled up in mounds 12 to 24 inches high. Heads rounded or egg shaped, densely spined with spines laying close to plant. The flower is pink.

151. Cory. **recurvata***—From Arizona. Grows in large compact clusters. The spines are usually yellow and curved back against the plant.

152. Cory. **palmeri***—One of the most showy of this genus.

153. Cory. **salm-dyckiana***—From Old Mexico. Conical green body with white spines. See picture on miscellaneous page.

154. Cory. **(Name unknown to me)***—This is a very pretty specimen, which I have been unable to identify. The flower is pink. Collected in West Texas.

155. Cory. **(Name unknown to me)***—Another of the unidentified Cory. This plant is similar to Sulcata, only has longer central spine. It may be Sulcata gathered from a different location.

156. Cory. **robustispina**—From Arizona. Resembles Sulcata in general appearance, but is much more common. The spines are stouter and yellow.

157. Cory. **chlorantha**—From Arizona. This plant is solitary in habit, 10 in. tall or less, and cylindrical. It is pale green in color and densely covered with straight, slender, white spines. The flower is yellow.

158. Cory. **Arizonica**—From Arizona. This plant is closely related to Aggregata but usually grows in larger clusters of somewhat smaller heads. The flower is pink.

159. Cory. **Alversonii**—From Arizona. Oblong, clustering heads covered with short, stiff, white, brown and black spines. The flower is pink.

160. Cory. **echinoidea**—A small globular plant with depressed brown spines. The flower is pink.

161. Cory. **elephantidens**—A small globular plant with depressed brown spines. The flower is large and pink.

162. Cory. **erecta**—From Old Mexico. Tall heads bearing star clusters of short yellow spines. The flower is large and yellow.

163. Cory. **georgii**—From Old Mexico. Slender columnar heads of dark green with white spine structures. The flower is yellow.

164. Cory. **pallida**—From Old Mexico. Globular plant with white depressed spines. The flower is yellow.

165. C. **(Name unknown to me)***—A beautiful Coryphanta from Old Mexico.

GENUS DOLICOTHELE

170. **Dolicothele longimamma**—From Old Mexico. A beautiful green plant with long nipples which are tipped with white spine clusters. This plant is rare.

171. **Dol. sphaerica***—From Texas. Green plant with light colored spines. Clusters freely, forming very large clusters from 12 to 15 inches in diameter. The flower is yellow and large.

Genus Echinocactus

This plant is composed of many plants with round or oval bodies, with few or many ribs, and with strong spine structures.

175. **Echinocactus moellerii**—From Old Mexico. Similar to Electracanthus in form only. Spines are flat, heavier, and bright yellow in color. Flower is rose.

176. **Ech. mondragona***—From Old Mexico. Small roundish plant with grayish-green body and short white spines. This plant grows from a carrot-shaped root, part of which usually extends slightly above the ground. Flowers are cream colored. See picture on miscellaneous page.

177. **Ech. coptonagonus***—From Old Mexico. Round heavy ribbed body. Spines are long, stiff, and flat, curving distinctly upward and are dark grayish in color. Flowers are lilac.

178. **Ech. grusonii***—The beautiful golden barrel cactus is from Old Mexico. The body is round, many ribbed, and bearing closely-set yellow spine structures. This plant grows very large, sometimes as large as a bushel basket. Has to be seen to be appreciated.

179. **Ech. horizonthalonius*** — From West Texas. Round to conical in shape with round ribs which divide it into sections like a cantaloupe. The ribs bear heavy, stiff closely-set spine structures down the center of the sections. Flowers are rose pink.

180. **Ech. polycephalus***—From California. Has several to many rounded heads, 4 to 12 in. in diameter, growing in compact clusters. Spines are flattened, flexible, and usually red or straw-colored. The base of the flower is buried in a mass of white, woolly hairs beneath the spines at the apex of each head. Flowers are yellow. A beautiful plant.

181. **Ech. xeranthemoides**—This species is very rare. It closely resembles Polycephalus. Flowers are yellow.

182. **Ech. elephantidens***—From Old Mexico. Round to conical in shape.

Genus Echinocereus

This genus is one of the most abundant and colorful group of cacti. The plants in this group are variously known as hedgehog, porcupine, or pickle cactus. The flowers are large and showy in most of the species, occurring in shades of orange, red, and purple.

190. **Echinocereus enneacanthus***—From South Texas. The plant is cylindrical, with long white spines and forming large clumps. These clumps are often 3 to 4 ft. in diameter. The flowers are from the middle of the plant and are a rich reddish-purple. This plant forms large green fruit pods which taste like strawberries and are often served with cream and sugar, commonly known as the strawberry cactus or pitaya.

191. **Ech. enneacanthus var.***—This plant is sold by most dealers as Enneacanthus, but it is quite different; it has more spines and a different flower. There is also another variety of this plant that grows in sandy soil; it has long yellow spines and the heads grow 18 to 20 inches long. The flower is much larger and has a small throat.

192. **Ech. englemanii***—From Arizona and California. This is a very showy plant. It has several central spines and in general the spines are longer than those of Fendleri. The plant grows up to two feet high and 4 to 6 in. in diameter. This is one of the first to bloom in the spring. Flowers are large and pink.

193. **Ech. delaetii***—The old woman cactus from Old Mexico Something like the Old Man cactus only the hair is not so white and is much longer with a few red spines at the top of the plant. Very rare.

194. **Ech. berlandieri*** — From South Texas. The stems are procumbent erect or ascending, contracted at the base,, straight or spiral. The flowers are reddish in color.

195. **Ech. blanckii***—From South Texas. Very similar to Berlandieri in form and habit. Blooms a month earlier. Flowers are reddish to dark reddish-purple with dark throat.

196. **Ech. pentalophus***—From South Texas. This plant is commonly known as the lady finger cactus. Very similar to Blanchii. The flower is a delicate pink to reddish-purple, pale toward the center.

197. **Ech. chloranthus*** — A West Texas species. Ovate in shape and densely covered with short, stiff, brown or reddish-brown spines. A unique feature of this plant is the appearance of the small greenish-yellow, sometimes greenish-brown blossoms near the middle of the plant.

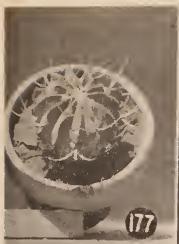
198. **Ech. conoideus*** — From West Texas. Dark green body with heavy spine structures along the ribs. Clusters freely, sometimes forming large clusters. The flowers are a beautiful red and remain open several days and nights without closing.

199. **Ech. ctenoides**— A cylindrical plant from West Texas. It is very closely related to Dasyacanthus and may not be specifically distinct. The flowers are reddish-yellow and very large for the size of the plant. RARE.

200. **Ech. dasyacanthus***—Known as the Texas Rainbow. This plant is very easily distinguished from the other species of this genus by the unusually large yellow flowers. The plants are cylindrical and very spiny. The spines vary in color from gray to red.

201. **(Name unknown to me)***—Has dark green body with ivory-like spines, with a few dark spines at the top. Very rare. Have collected cactus for five years and found only four of these beautiful plants.

202. **(Name unknown to me)***—Grows along the Devil's River in Texas, forming large clusters of smooth green stems with few spines. Very large red bloom.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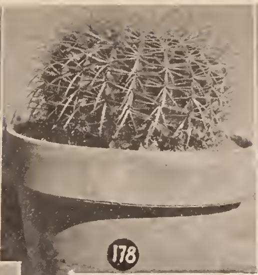
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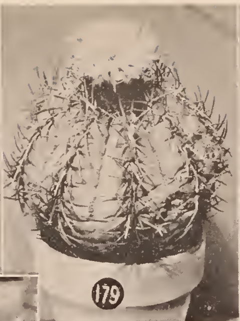
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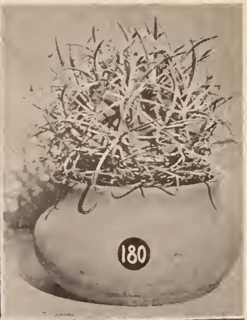
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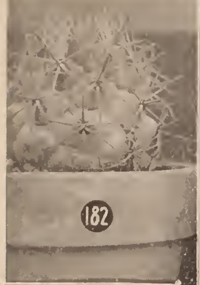
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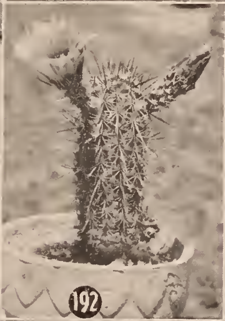
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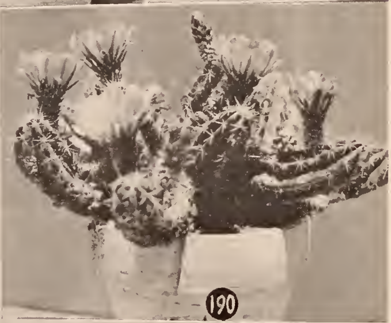
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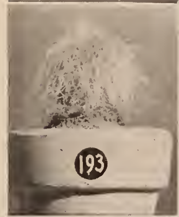
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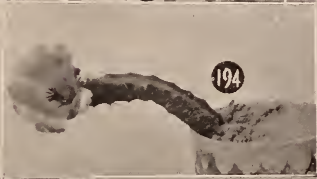
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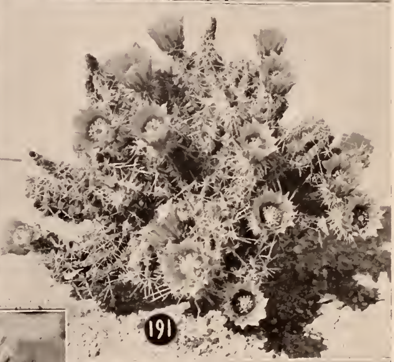
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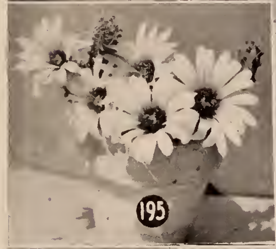
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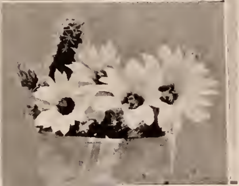
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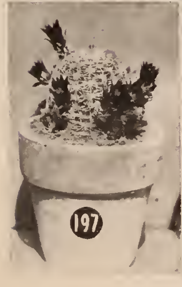
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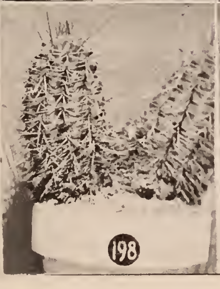
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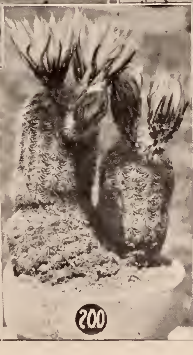
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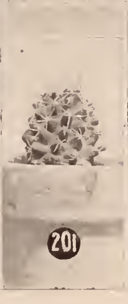
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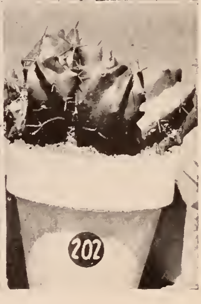
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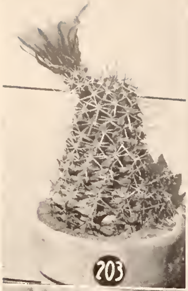
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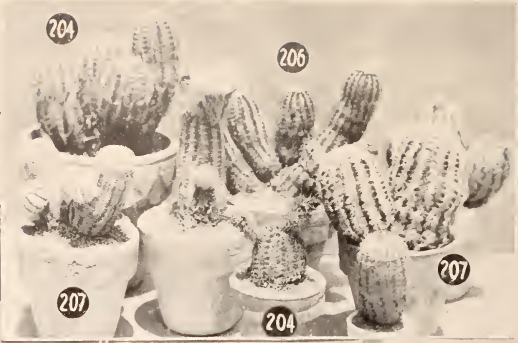

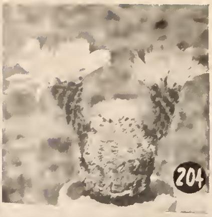
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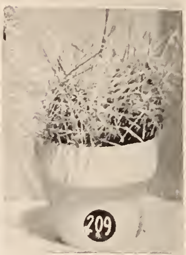
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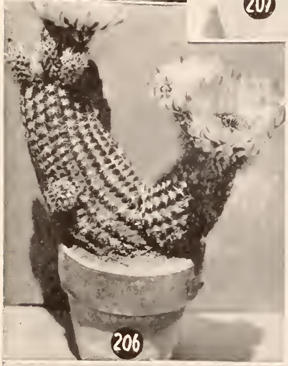
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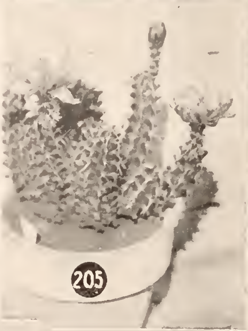
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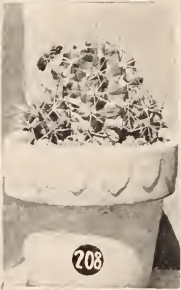
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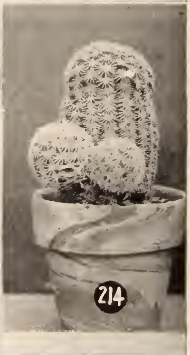
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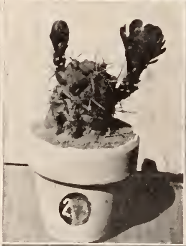
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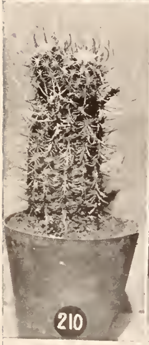
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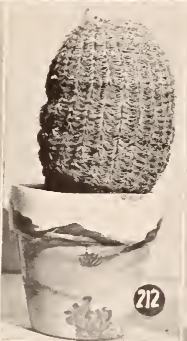
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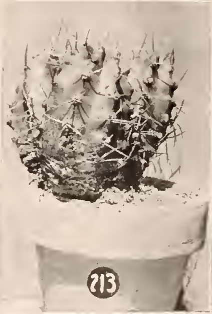
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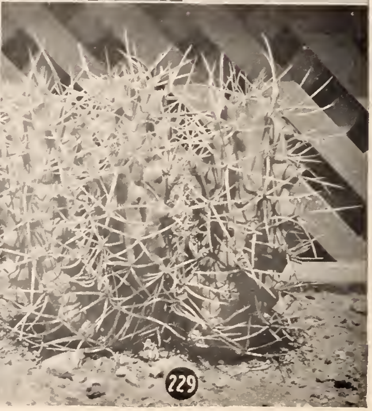
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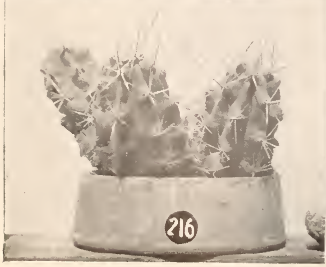
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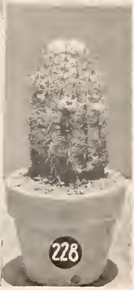
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GENUS ECHINOCEREUS—Continued

203. **Ech. fendleri***—Similar to Engelmannii, only does not grow in such large clumps and has short, stout branches 6 to 8 inches long. The flowers are bright red with dark centers. A native of Arizona.

204. **Ech. fitchii***—From South Texas. A small plant with brown spines and large purple flowers.

205. **Ech. papillosus***—The only place this plant is known to grow is in South Texas. Dark green body with light colored spines. The stems are 4 to 8 inches high, branching at base and forming clusters. The flowers are large yellow with reddish centers.

206. **Ech. perbellus***—From North Texas, near Big Springs. Similar to Reichenbachii in form, but more delicate in structure. Spines are reddish and brown. The flowers are large and purple.

207. **Ech. reichenbachii***—This plant has a wide distribution over Texas; in fact there seems to be two varities, one with white spines called the Snow Ball, and one with brownish spines called the Lace Cactus or Cob Cactus. The Ech.Fitchii and Ech. Perbellus are very similar to this plant and should they all grow together would be hard to separate. They have large purple or rose blooms with a little color variation in each variety. I have grouped these so you can see how nearly alike they are.

208. **Ech. roseii***—From West Texas. Similar to Conoides, only it grows larger. Has beautiful scarlet flowers. Hard to identify.

209. **Ech. stramineus***—From the high hills of West Texas. Has long cylindrical stems which are covered with extra long yellowish-colored spines which almost hide the body of the plant. Forms huge clusters. Flowers are purple.

210. **Ech. viridifloris***—From Texas. Roundish in shape, from 3 to 6 inches high. Spines are variagated from brown to orange-yellow or white. Flowers are small greenish.

211. **Ech. octacanthus**—From West Texas. Cestipose with many simple joints. Spines rigid grayish-brown. The flowers are red and remain open for several days.

212. **Ech. rigidissimus***—From Arizona. The beautiful red spined Rainbow. The plant is short cylindrical to ovate in form and is covered with a dense mass of dark red spines which vary in color, hence the common name of Rainbow. The flowers are deep rose.

213. **Ech. triglochidiatus***—From West Texas. The plants are cespitose, with one too many stems, and forming large clumps. This is one of the earliest of cactus to bloom. The flowers do not close at night but stay open for several days. Flowers are scarlet and goblet-shaped.

214. **Ech. roetteri***—From West Texas. Similar to Dasyacanthus, except for its fewer ribs, stouter, spines, and purple flowers. Rare.

215. **Ech. lloydii**—From West Texas. Stems in clusters of six or more, very stout. Plant bright green. Flowers are large and reddish-purple.

216. **Ech. dubius***—From West Texas. Similar to Straminius in appearance and form, only has fewer spines. Flowers are pale purple in color and have rather few and pointed petals.

217. **Ech. barthelowanus**—From Lower California. Grows in dense clusters of small heads hidden by many straight brown to purple spines.

218. **Ech. brandegeeii** — From Lower California. Forms loose clusters of large, long heads, bearing flat heavy spines. The flowers are large and clear pink.

219. **Ech. ferreirrae**—From Lower California. This species somewhat resembles fendleri, however it has a peculiarity in common with barthelowanus in that every branch forms its own roots. It has a remarkably large, clear pink flower bearing white spine clusters on the outer perianth segments.

220. **Ech. mammillatus**—A very rare plant from Lower California. Very few of these plants have been found. The ribs are broken up into separate mammillae bearing clusters of short, stiff, gray spines.

221. **Ech. maritimus (cereus flaviflorus)** — From Lower California. This species forms large, many-headed clusters. The spines are from yellow to gray. The flowers are yellow and last for a long time.

222. **Ech. pacificus**—From Lower California. Very dense clusters of small heads with brown to purplish colored spines. The flowers are red.

223. **Ech. pensilis**—From Lower California and very rare. Branches are peagreen, an inch or more in diameter with almost white spines. The flowers are scarlet.

224. **Ech. sciurus**—From Lower California. Forms mammilliria-like clusters of fat heads covered with short white to gray spines. The flowers are a vivid clear pink.

225. **Ech. bonkerae**—From Lower California. A new one of the engelmannii group. Has more ribs, shorter spines, and deep purple flowers.

226. **Ech. cinerascens** — From Lower California. Forms clusters of green heads bearing short, soft, white spines. The flowers are purple.

227. **Ech. ehrenbergii**—Forms clusters of small, light-green branches, soft white spines. Flowers not known.

228. **Unidentified** *—Have been unable to identify this plant so far. From West Texas. Has red, white, and gray spines. The plants are always topped with white spines, as shown by the picture. Blooms from the side, with greenish flowers.

229. **E. (Correct name unknown to me)***—From the white sands of New Mexico. Grows very large, stems sometimes 18 inches or more high. Spines are triangular in shape, somewhat twisted. On large plants spines grow from 4 to 6 inches long. Very scarce and hard to obtain. Has blooms similar to No. 204.

Genus Echinofossulocactus

This is a very interesting group of cactus, all members of which are native to Old Mexico. They are biscuit to conical in shape, bearing round to flat spines from multiple small irregular ribs.

250. **Echinofossulocactus crispatus***—Dark green body, many ribbed. Ribs irregular in form, bearing short, flat, grayish colored spines, which lay close to the body of the plant. Flowers are violet.

251. **E. lamellosus***—Similar to crispatus only grows taller. Spines somewhat longer and more outstanding

252. **E. multicosta***—Dark green, conical shaped body. Many very small irregular ribs bearing both round and flat white or gray spines. Flowers are rose.

253. **E. tricuspidatus***—From Old Mexico. This plant is more conical in shape, spines shorter.

254. **E. zacatenasensis***—Dark green body, rather low, many ribs bearing flat pointed spines. White flowers.

255. **E. obvallatus**—Dark green ovate body, very similar to multicosta, with spines more outstanding.

256. **E. violacieorus**—From Old Mexico. Similar to multicosta, with spines more upstanding.

257. **E. phyllaenthus**—Conical in shape with fewer short, flat, stiff spines.

258. **E. durangensis**—Very similar to Crispatus but with shorter, more pointed spines.

Echinopsis

A very interesting group of globular, green plants. The blooms are produced on long trumpets and very beautiful. This group is from South America.

265. **E. chinopsis multiplex***—Dark Green globular body. Large trumpet-shaped pink flowers.

266. **E. muelleri***—Round dark green plant that drops its spines with age. A very interesting and beautiful plant. Pink flowers.

267. **E. eyresii**—Dark green globular body. Large trumpet-shaped white flowers.

268. **E. campylacantha.**

269. **E. colmariensis**—These are nice plants. Flowers not known.

270. **E. mamillosa**—Green body, medium spines, white flower.

271. **E. mia**—Same as above, only spines are very short. Light pink flowers.

272. **E. nuda.**

273. **E. paraguayensis.**

274. **E. triumphans.**

275. **E. turbanati.**

276. **E. endulata.**

277. **E. wilkensi.**

278. **E. zuccariniana**—These are all beautiful round green types. Flower colors not known to me.

279. **E. schelhasei**—Similar to above. Beautiful pink flowers about 8 inches long, lasting about five or six days.

280. **Epithelantha micromeris***—From West Texas. Known as the button cactus. Little grayish balls from the size of a thimble to a golf ball. Has small bloom, then little red seed pods shoot up, sometimes one-half inch long.

281. **Epithelantha var.***—From West Texas. Different from above. White waxy button. Looks more like it has scales than spines.

GENUS ECHINOMASTUS

284. **Echinomastus intertextus***—From Arizona and Texas. This plant has red spines which lie flat against the plant and are interlaced, with the exception of one central spine which is short, stout, and directed outward. Flowers white, tinged with pink. One of the earliest bloomers.

285. **Echinomastus dasyacanthus.**—This species is similar to the above, but flowers are larger, and spines are longer. Native of Texas.

286. **E. erectocentrus**—From Arizona. This species is often confused with E. Johnsonii. Both plants are about the same size and the flowers are the same color. Has one to three central spines, one of these an inch or more long is directed upward.

Genus Escobaria

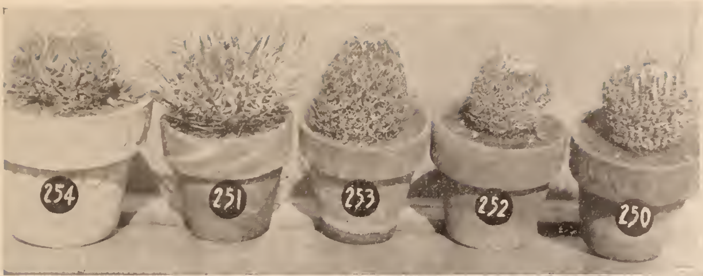
A very pretty plant. The stems are small, globose or cylindrical, single or caespitose, never milky. The roots are always fibrous. The tubercles are spiny, but the spines are never hooked. The flowers appear at the bottom of the youngest tubercles. Blooms early in the spring.

290. **Escobaria tuberculosa***—One of the largest species of this genus. Plant is single or branched, grows from 3 to 6 inches high, is usually cylindrical. Spines are white or grayish, falling from the old tubercles at the bottom of the plant. Flowers are a beautiful pink.

291. **E. dasyacanthus***—This plant closely resembles E. Tuberculosa in general appearance and is often mistaken for it. E. Dasyacanthus is always globose in shape and the spines on lower part of plant do not usually drop off, avoiding the naked appearance of lower part of plant so common with E. Tuberculosa. Flowers deep rose pink.

292. **E. runyonii***—The stems are single or caespitose, varying from one to four inches in height. This plant forms large clusters, sometimes as many as 100 heads in each cluster. The stems are erect, with brown central spines mostly pointing up. Yellowish-colored flowers.

293. **E. sneedii**—This is a small densely caespitose species. The stems are jointed or branched, forming masses that spread out over the ground. The spines are nearly white. The flowers are pink to saffron.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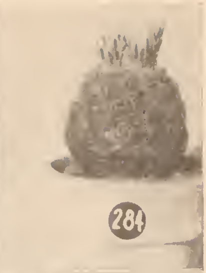
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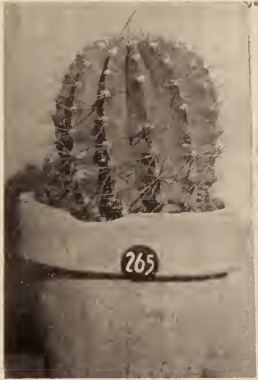
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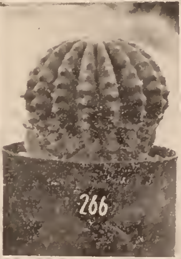
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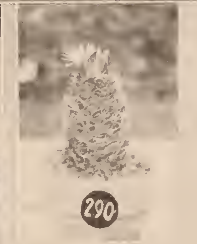
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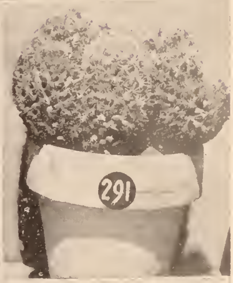
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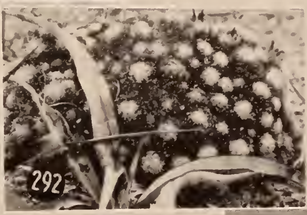
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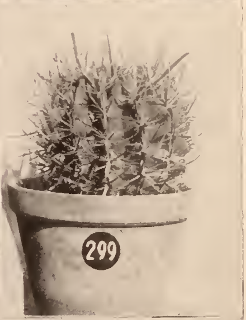
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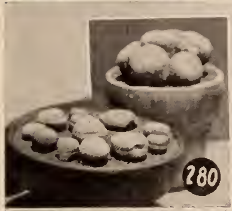
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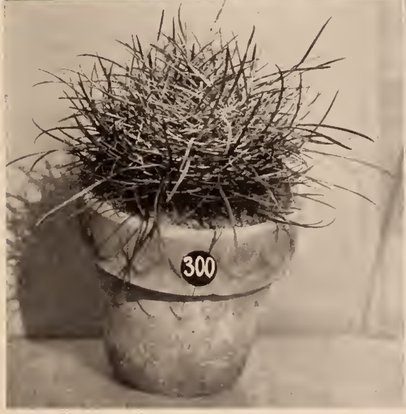
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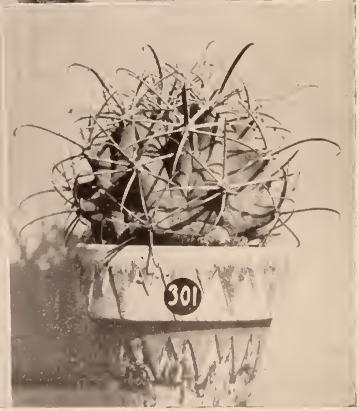
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Genus Ferocactus

This genus includes the largest as well as the smallest plants of the barrel cactus group. They consist of a globular or cylindrical cactus sometimes reaching a height of 8 feet. Flowers occur at the top of the plants.

299. F. vizcainensis*—From Lower California. Globular bearing clusters of long, heavy, strongly-hooked spines.

300. Ferocactus acanthodes*—From Arizona and California. The large red spined barrel cactus. Spines become bright red when wet. Often called the fire ball cactus due to its bright fiery red color. A beautiful plant.

301. F. coville*—From Arizona. Globular in form, noted for prominent tubercles and long, stout, hooked spines. One of the prettiest.

302. F. coloratus—From Lower California. Globular bearing clusters of reddish-brown spines that are probably the widest on any known cactus.

303. F. crassihamatus—From Old Mexico. Globular with depressed varicolored spines. Very unusual in that several of the radial spines as well as the central spines are hooked.

304. F. fordii*—From Old Mexico. A small species bearing broad gray spines. Seedling pictured.

305. F. gracilis (californicus)*—From Lower California. Tall growing cylindrical species bearing red spines.

306. F. hamatacanthus*—From South Texas. This plant resembles Setispinus, only grows much larger and has flat flexible spines, the ribs are not twisted as much. It is easily recognized by its large head and long hooked spines. The flowers are lemon-yellow, some with red centers.

307. F. johnsonii*—From Arizona and California. A small cylindrical plant. It has many spines which stick straight out from the plant and are varying in color. The plant attains a height of 10 to 12 in. in diameter. The flower is pink to purple-red.

308. F. lecontei*—From Arizona. A slender plant and also one of the tallest of this group, sometimes reaching a height of 7 to 8 ft. and diameter of 15 or 18 inches. The spines of the young plants usually being very red and showy.

309. F. latispinus (echinocactus cornira)*—From Old Mexico. Globular, dark green body with pronounced ribs, bearing very wide, stout, hooked dark red spines. There is also a variety of this species which bears yellow spines and is very rare.

310. F. melocactiformis (E. electracanthus)*—From Old Mexico. A globular to cylindrical plant with curved yellow spines.

311. F. pringlei—From Lower California. Globular plant with straight red spines.

312. F. rectispinus*—From Lower California. The hat pin cactus. Probably has the longest spines of any cactus, the spines often reach a length of 10 inches. Seedling pictured.

313. F. robustus—From Old Mexico. A large globular plant, eventually clustering. Has straight, stiff pines.

314. F. tortulospinus—From Old Mexico. The twisted spined cactus. It is noted for its long twisted and curved red or gray spines. Flowers are yellow.

315. F. towsendianus—From Lower California. Has broad green ribs topped by clusters of small light gray spines. The flowers are red and yellow.

316. F. uncinatus*—From West Texas. A short cylindrical plant which sometimes attains a height of 12 to 14 inches. The body is bluish-green in color. The central spines are long and hooked, yellow below and reddish towards tips, they curve up around the body of the plant forming a mass of spines at top. The flowers are dark orange to chocolate-brown in color and almost hidden in the compact spine clusters at the top of the plant.

318. F. viridescens—From Lower California. This plant grows to 12 in. in height. The spines are yellow or reddish. The flowers are greenish-yellow.

319. F. wislizeni*—From Texas, New Mexico, and Arizona. This plant is often confused with Leconteii which it resembles closely in most characteristics. The spines are rounder, stiffer, and darker in color than in the Leconteii. This plant is used extensively for making candy. It grows to a very large size sometimes weighing several hundred pounds. The flowers are orange-red.

320. F. pfeiferii (Glaucescens)*—From Old Mexico. Globular green bodied plant with yellow spines.

321. F. ingens*—From Old Mexico. Globular, many ribbed, bearing stiff round spines along margins of ribs. The body of this plant when in the sunshine takes on red marking or stripes. Sometimes called the Zebra cactus. Seedling pictured.

322. F. nobilis (E. recurvas)*—From Old Mexico. Globular with yellow to red spines. Seedling pictured.

340. **Hamatocactus longihamatus*** — Another of the West Texas fishhook cactus. Grows much larger than uncinatus and has long red, hooked spines. Dark green ribbed body. The flowers are large and lemon-yellow with red centers.

341. **Hamatacactus setispinus***—From Central and South Texas. This plant is called the twisted rib cactus, but on small plants the ribs are straight. It is one of the most persistent bloomers and does well most anywhere and in any kind of soil. The flowers are lemon-yellow with red centers.

342. **Homalocephala texensis*** — From Southern United States and Northern Mexico. Commonly called the Devil's Head cactus. This is a round flat-growing species, attaining a width of 12 to 14 inches and height of from 4 to 12 inches. The body is dark green with very pronounced ribs which bear stout, sharp rigid spine structures. The flowers are beautiful, feather-like and fragrant, shell to deep pink, gradually becoming deeper to red toward the center. The seed pod is large and bright red, making a showy plant when in fruit. You will note from pictures which are grouped, the extreme variation of this plant from different sections of Texas.

343. **Neobesseya similis***—From Texas and Oklahoma. Green body covered with spines of a dirty white with brownish tips. This is a low-growing plant, freely clustering. The flowers are green, turning pinkish on second day.

344. **Neob. missouriensis***—From Texas and Oklahoma. The stems are simple, or in masses, sometimes a foot or more across. The tubercles are more or less spiraled. Spines are gray, usually all radial, but sometimes one central. The flowers are greenish-yellow.

345. **Neob. wissmannii**—From Texas and Oklahoma. The stems are solitary or in masses forming large mounds of twenty to thirty heads. Globose, tapering tubercles. Tubercles spread out and are tipped with spine clusters of white to gray or cream to yellow. Flowers are large and vary from orange to yellow.

346. **Neolloydia texensis***—From Texas. The stems are small, cylindrical, and very spiney. Spines are white and widely spreading. The flowers are usually pink or purple. (Spines have black tip).

Genus Neomammillaria

The species of the genus are tuberculated and are distinguished from the Coryphanthae by two characters, the tubercles are not grooved above and the flowers are borne from the sides of the plant. This genus is represented by many interesting plants. The milky section of the species is hemispherical to globular with somewhat straight spines and yellowish flowers. The non-milky section of the species has long cylindric heads which freely clusters and all have more or less hooked spines. The flowers of this type usually being pink or pinkish.

355. **Neomammillaria hemisphaerica***—From Texas and Northern Mexico. The plants are dark green, one to two inches high and about two to five inches in diameter. Low, half sphere-shaped, and covered with nipples bearing spines at the tips. The flowers are yellowish to brownish tinged with red, sending out red pods in fall.

356. **N. heyderi***—Texas and Northern Mexico. Closely resembles N. Hemispherica. It takes a very close observer to note the difference. N heyderi is the flat growing species, not easily seen until you are right at it. Flowers are pinkish.

357. **N. applanta***—Texas and Northern Mexico. Very similar to N. Hemisphaerica and N. Heyderi, the tubercles, however, are more spreading and fewer, and the clusters of spines at tips of tubercles are stronger and fewer. Flowers similar to above.

358. **N. meiacantha****—From Texas and Northern Mexico. Very similar to the above species, only that it might be called the giant of the species as it grows to quite a large plant, sometimes as much as 12 inches in diameter and 10 to 12 inches in height. This species seems to cristate more readily than the other types. The flowers are cream to whitish with darker stripe on the petals. This and the three above send out red seed pods in the fall.

359. *—From Old Mexico. Similar to 358 with central spines that curve downward.

360. *—Similar to above, only has longer central spines curving downward with the ones at the base curving upward. Also from Old Mexico.

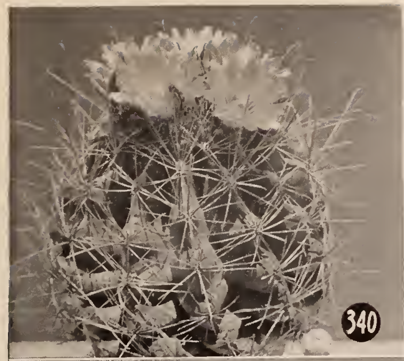
361. **N. multiceps***—From Texas and Northwestern Mexico. This is one of the hairy type cactus appearing wooly all over due to the abundance of small fine hairs underneath the spines. The plants are low, one-half to one inch in diameter or slightly more, rarely grow solitary, mostly forming clumps, sometimes very large. There are two distinct types of this species. The most common has brown spines, the other has gray or nearly white spines. The flowers and fruit of both types being very much alike. The flowers are yellowish, later forming red seed pods which stick up from plant, making it very showy when in fruit.

362. **N. lasiacantha***—From Texas, New Mexico, Northwestern Mexico. This plant is one of the very small types covered with tiny tubercles which are tipped with many white spines. The abundance of spines completely covering the plant and giving it a snowy-white appearance. The flowers are small, whitish or pinkish.

363. **N. denudata***—From West Texas and Coahuilla, Mexico. Very closely related to N. Lasiacantha. In appearance they are often taken for the same plant. N. Denudata seems to be a larger form of the N. lasiac. The flowers are cream colored with stripe on inside.

364. **N. pottsii***—From West Texas and Northwestern Mexico. One of the cylindric types. The stems are single or sespitose. The spines are whitish or grayish and almost cover the tubercles. The flowers are small and purplish in color.

365. **N. wrightii**—From West Texas and New Mexico. Stems globose or short cylindrical with flattened top. Grows to a height of three inches or more. The tubercles are crowded and tipped with twenty or more creamy or nearly white spines radially and central spines of red or dark red. The central spines usually being on straight and two or three hooked. Spines are spreading and interlacing. The flowers are large and purplish in color. This is an extremely rare plant.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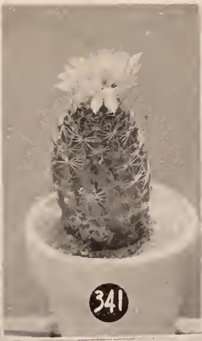
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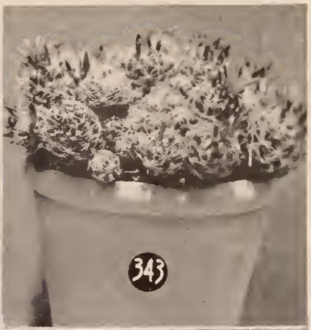
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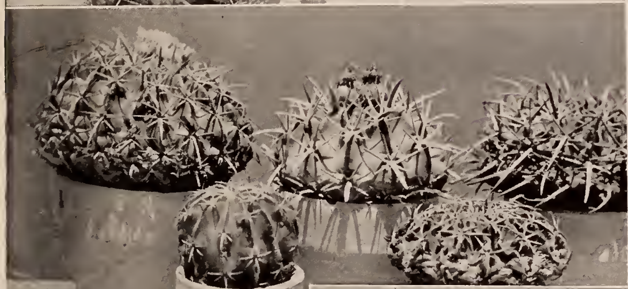
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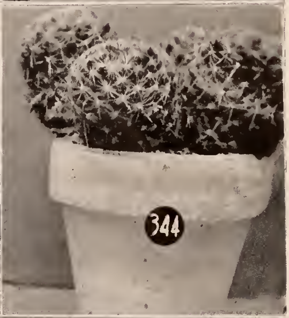
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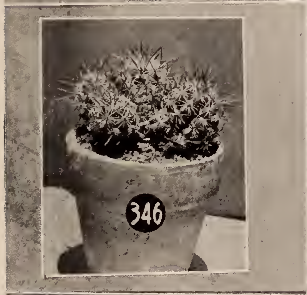
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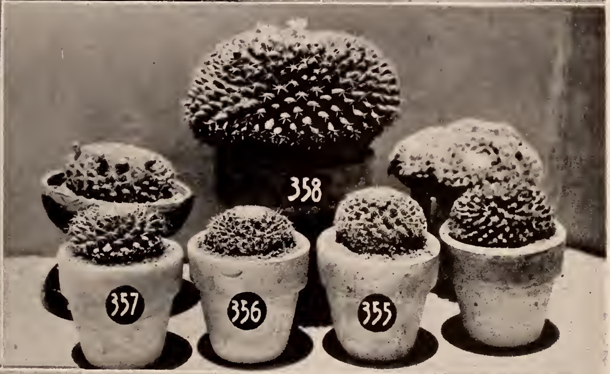
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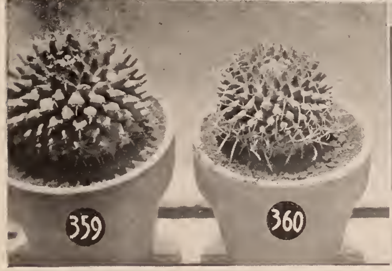
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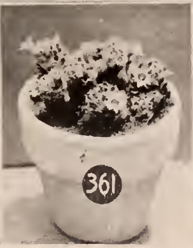
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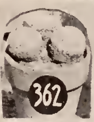
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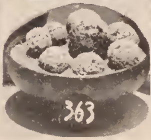
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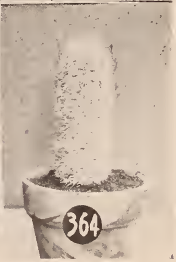
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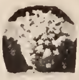
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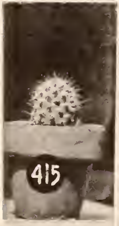
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366. **N. microcarpa (M. grahamii)***—Southwestern U. S., Northwestern Mexico. One of the cylindric, hooked spine species. The stems are simple or branched, globose to cylindrical, cespitose. Tubercles small. Many spreading cream-colored darker tipped, radial spines.

367. **N. arida***—Lower California. A milky type, white to brown spines. Some wool in axis.

368. **N. armillata**—Sometimes forms clusters of blue-green heads a foot high. Spine clusters of white to rich brown. Branches are often marked by darker horizental bands.

369. **N. baxteriana**—Lower California. One of the milky, globular types. Spines nearly white.

370. **N. blossfeldiana**—Lower California. Hemispherical, milky type. Brown or gray spines

371. **N. brandegeeii**—Lower California. Small globular heads with brown hooked spines. Tuberous rooted type. Large pink flower.

372. **N. bullardiana**—Lower California. Not milky fine rather soft white spines, with brown hooked central spine. Clusters freely. Flowers are pale pink.

373. **N. capensis**—Lower California. Many branched, brown spined. Flower is pink.

374. **N. gabbii**—Lower California. Similar to N. Brandeggeii, only it is larger, more globular and bears coarser brown spines.

375. **N. gatesii**—Lower California. Called by the natives "Corona del India" because of the halo formed by the light shining through its spines. Milky, globular, with white to brown spines of great length for this group of plants. Very rare.

376. **N. marshalliana**—Lower California. Milky, biscuit shaped, white spined species.

377. **N. pacifica**—Lower California. One of the largest milky types in the Peninsular section. Brown spined, branches by division of the growing heads.

378. **N. peninsularis**—Lower California. A deep seated, milky plant bearing very few spines on its prominent nipples.

379. **N. Petrophila**—Lower California. Milky, large headed, brown spined, clustering plant. Very rare as it grows in high mountain ranges.

380. **N. bocasana***—Northern Mexico. Round heads bearing both hooked spines and long silky white hair.

381. **N. camtotricha**—Forms clusters, long green tubercles, curling hair-like yellow to brown spines. Flower is white.

382. **N. compressa**—A hemispherical, clustering plant bearing short, fat tubercles with wooly axis. Flowers are ruby-red.

383. **N. decipens**—Forms dense clusters of deep green heads, reddish brown spines. The flowers are cream colored.

384. **N. dioica***—From California. Forms clusters of gray green heads, reddish brown spines. The flower is cream colored.

385. **N. mainae***—From Arizona. Is a biscuit shaped cactus sometimes 6 in. across with sharp hooked central spines about one-half inch long. Propagates from the lower edge of the plant. Color of bloom unknown to me.

386. **N. echinaria**—Forms clusters of tall heads with straight yellow spines.

387. **N. elongata var. aurata***—The golden star cactus. Freely clustering slender headed plant bearing star shaped clusters of depressed yellow spines. Flowers are yellow.

388. **N. fragilis**—The thimble cactus. Clusters of small round heads bearing depressed white spines.

389. **N. hahniana***—Northern Mexico. The old woman cactus. Round heads densely covered with long white hair. The flowers are reddish and appear in circles around the top of the plant.

390. **N. klissingiana**—Northern Mexico. A globular, milky plant densely covered with short white spines. The flower is red.

391. **N. longicoma**—Northern Mexico. Forms clusters of globular heads bearing white hair and hooked spines.

392. **N. magnimama***—Hemispherical, milky, plant bearing very heavy tubercles with yellow curly spines. The flower is cream colored.

393. **N. mystax**—Northern Mexico. Milky, globular plant bearing creamy spines. Flower is red.

394. **N. painteri**—Northern Mexico. Clusters of small heads with short brown hooked spines.

395. **N. parkinsonii**—Northern Mexico. A globular plant bearing short light colored spines.

396. **N. saetigera**—A globular, milky plant bearing short white spines.

397. **N. wagneriana**—A globular milky plant that is remarkable for its very long dark central spines.

398. **N. wildii**—Forms clusters of globular heads, bearing white and yellow spines. The flowers are numerous and white.

399. **N. porfiria schwartzii***—A rare little plant of this group. Heavy carrot like root with only a green crown decked with tiny white spine clusters showing. Matured plant not over 2 in. diameter.

400. **N. macdougalii**—Arizona. Very similar to N. Heyderi. One of the milky type.

401. **N. oliviae**—Arizona. This plant seldom grows larger than 4 in. hig hand 2to 3 in. in diameter.

402. **N. barbata**—Arizona. Grows in cluster of 3 or 4 to 12, with spines covered with fine hairs. The only species of this group that flowers at the top of the plant.

403. **N. fasciculata***—Arizona. Very small globular plant having small hooked spines. This plant forms clusters. The stems break away from the body very easily. They reproduce by side buds.

404. **N. viridiflora** — Arizona. Globular type with heads 1 to 4 in. high and about 3 in. in diameter. Dark amber to wine red hooked spines. Very rare.

405. **N. wilcoxii**—Arizona. Closely resembles N. Viridiflora. Now very rare.

406. **N. nivosa**—Islands of Mona and Culebra. Globular to cylindrical body covered with yellow spines, considerable hair appearing in the axis in older plants.

407. **N. plumosa***—Mexico. Small globular to flat plant covered with soft feathery-like spines which are white. Commonly called Feather Balls.

GENUS NEOMAMMILLARIA—Continued

408. **N. candida***—Mexico. A globular plant covered with fine, white, compressed spines. Solitary or cespitosed. Flower is pink.

409. **N. carnea**—Mexico. One of the milky types. Cylindric with pronounced tubercles tipped with small dark colored spine clusters.

410. **N. elegans**—From Old Mexico. Cylindrical gray green body covered with fine white spines and short, stiff, erect central spine. Flowers are red.

411. **N. (Name unknown to me)***—From Old Mexico. Forms clusters of round heads covered with fine white spines.

412. **N. lenta***—From Old Mexico. Similar to Lanta in form and habit but with larger heads.

413. **N. strobiliformis**—From Old Mexico. Flattish gray-green body with soft white spines. Rare.

414. **N. mulleri***—From Arizona. Similor to Microcarpa but more robust.

415. **N. fraileana***—From Lower California. Non-milky type, clustering in habit, has pinkish colored spines.

416. **N. Vipapara***—Similar to No. 387 only much larger with brighter yellow spines. Flower is cream colored.

417. **(Of the Neom. variety)***—Proper name of this plant is unknown to me.

418. **(Name unknown to me***—A beautiful plant from Old Mexico with white spines and pretty pink flowers.

419. **N. zeyheriana***—From Old Mexico. Cone shaped with grayish-pink spines. Flower unknown to me.

420. **(Name unknown to me)***—From Old Mexico. Has sharp spines in rings of black and gray.

421. **(Name unknown to me)***—Similar to No. 420 only it has white, hooked spines.

422. **N. lanta***—Flat to conical with rows of white wool around plant. Grows tall. Very interesting. From Old Mexico.

423. **(Name unknown to me)***—Very small plant from Old Mexico. Oval shaped covered with fine white spines.

Opuntia

This genus includes the cylindrical jointed (cholla) and the flat-jointed (prickly pear) types of cacti. Opuntias form a large section of the cactus family. They are usually large and quick growing. They have a wide distribution over both North and South America.

430. **Opuntia brasiliensis***—A native of Brazil. A beautiful tall-growing. tree-like plant. Reaches a height of 8 to 10 ft. Round trunk with dark green, pear-shaped leaves or pads, long light colored spines. Flowers are yellow.

431. **O. bigelovii***—A native of Arizona. Called the golden spined cholla. A tree-like branching plant covered with straw colored spines. Makes large plant, sometimes 3 to 4 ft. high. Flowers pink to magenta.

432. **O. davisii***—A native of Texas. A low-growing tree type cholla with a dense covering of yellow to straw colored spines., each spine being covered with a sheath. The flowers are olive green to yellow in color.

433. **O. subulata***—Native South America. Has round stems, pronounced round leave 3 to 5 in. long which grow along the trunk of the plant. Plant usually branches near the top. This is a tall tree-like plant, grows to large size and is the only Opuntia which retains its leaves.

434. **O. imbricata***—A native of Texas. Tree type in shape with few to many erect stems growing to a height of 3 to 8 ft. The stems are cylindrical, tuberculated, about one inch in diameter, and very spiny. The spines are short and numerous being covered with loose fitting sheaths. The flowers are bright purple.

435. **O. leptocaulis (tasajillo)***—Native S. W. United States and Northern Mexico. Usually bushy often compact. Plant stems slender with long thorns. There is a great variation in this plant. Flowers are small and inconspicious. The fruit forming and remaining on plant in winter is rather showy. On some plants the fruit forms clusters of bright red berries, on others clusters of yellow berries.

436. **O. kleiniae***—Native Texas to Central Mexico. The stems grow sparsely and reach a height of 3 to 5 ft. O. Kleiniae is cane stemmed coming between the slender stemmed O. Leptocaulis and the heavy stemmed O. Imbricata. Flowers are purple.

437. **O. neo-arbuscula***—Native of New Mexico. Variety similar to O. Imbricata, only it doesn't grow quite so large and has more spines.

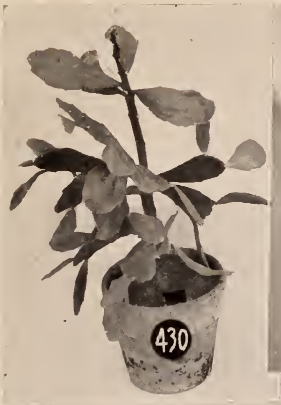
437a. **O. ciribe**—Native of Lower California. A cholla with fat, green, upcurved branches, bearing numerous clusters of white spines. The flowers are greenish yellow.

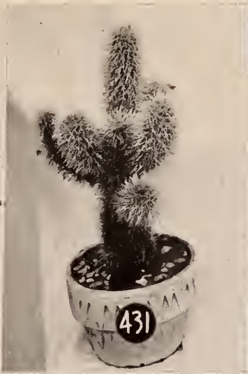
438. **O. fulgidae***—Native of Arizona. Similar to O. Bigelovii. Grows 3 to 12 ft. high. Flowers are deep maroon, purple or pink.

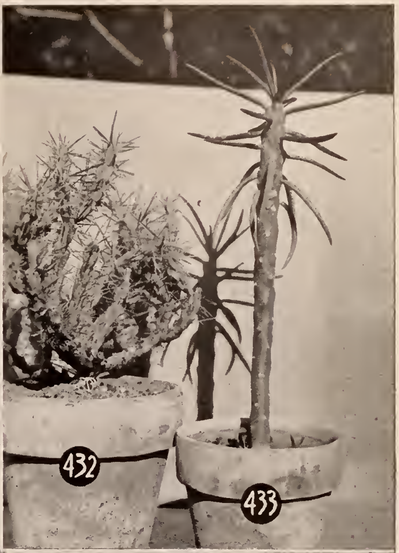
439. **O. ramosissima**—Native of Arizona. Low-growing, spreading plant, small stems slightly larger than a lead pencil, which are dry and woody and have a withered appearance. The surface of the joints is marked off in regular, somewhat diamond shaped areas. The spines are yellow and numerous.

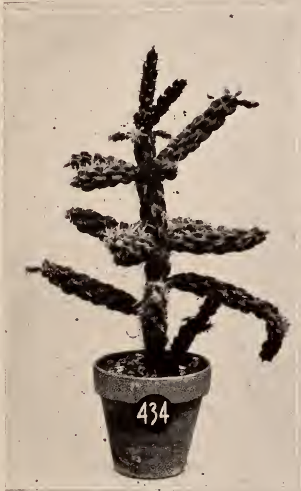
440. **O. tetracantha**—Native of Arizona. Similar to O. Leptocaulis only the stems are larger and spines are more numerous. Fruit is green, occasionally tinted with red. Flowers are greenish-yellow.

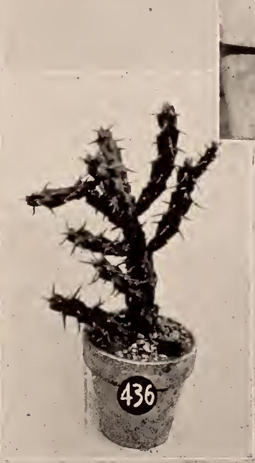
441. **White flowered opuntia***—Name unknown to me. I discovered this plant in South Texas in 1932 in bloom. It is the flat leaf type and grows to a height of 8 ft. with yellow spines. It has blossomed every year since 1932.



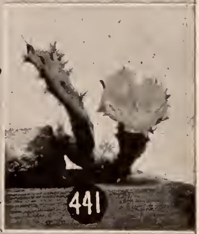


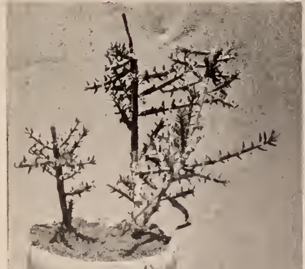


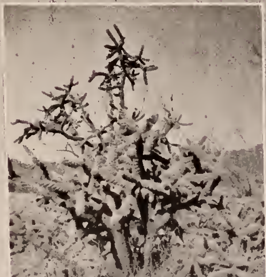


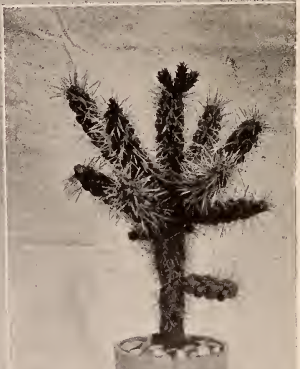


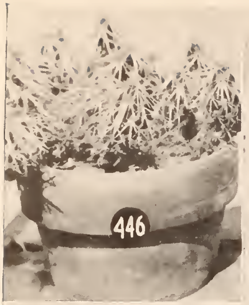
#441 - Is the only white flowered Opunta I know of in Texas. Collected by myself in 1932







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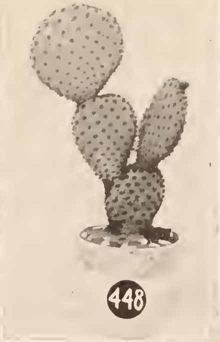
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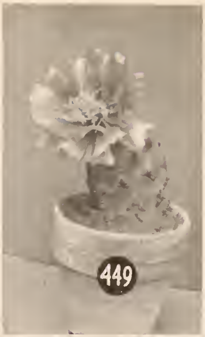
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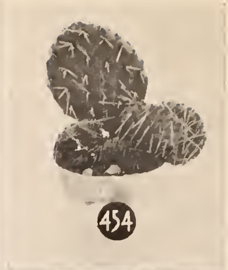
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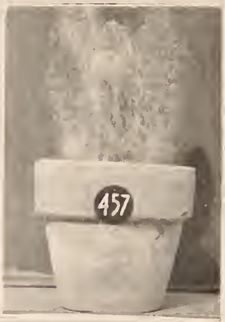
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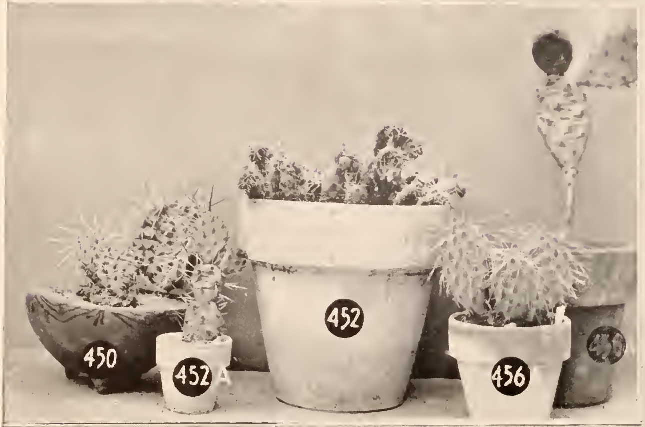

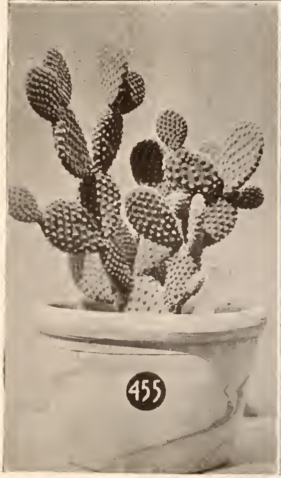
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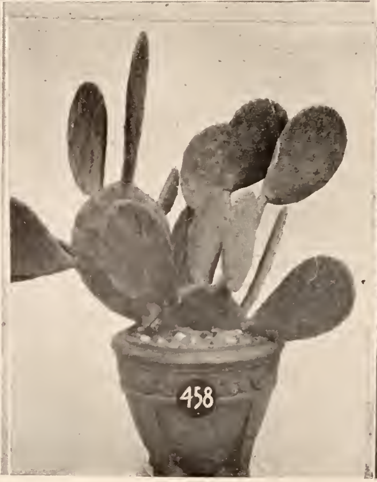
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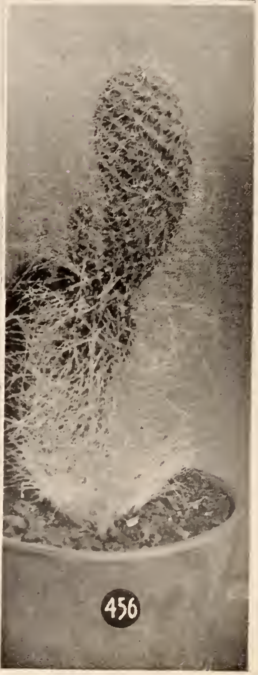
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446. **O. stanlyi***—Native of Arizona. Is a prostrate and extremely spiny cholla which forms large clusters. 2 to 3 ft. across. Spines are broad, flat, and flexible, and have no sheaths only at tips. Pear shaped fruit is yellow, about 2 in. long and spiny.

447. **O. schotti**—Native Texas and N. E. Mexico. Small, prostrate, forming dense clusters. Joints clavate breaking off easily. Spines white and sheathed, becoming brown in old plants. Flowers yellow.

448. **O. rufida (Blind Pear)***—Native of Texas and Northern Mexico. Erect with somewhat definite trunk; joints nearly orbicular and thickish, dull grayish green in color and studded with dark red velvety bristles which causes it to be admired by every one who sees it. Flowers yellow to orange.

449. **O. grandiflora***—Native of Texas. Low with somewhat ascending branches. Very few spines. This is the largest and most beautiful flowered species in Texas. Flowers are large, yellow with a red center.

450. **O. tortispina**—Native western U. S. Prostrate, joints ascending, orbicular to ovate. The spines are often one to two inches long, white to yellowish brown. The flowers are sulphur yellow.

451. **O. pottsii**—Native Texas, New Mexico and Northern Mexico. Low, spreading from thickend tuberous roots. Spines are mostly confined to upper margin of pads. Joints broadly obovate, pale green to bluish. Flowers large purple.

452. **O. fragilis**—Native to most of Western U. S. Low and spreading, joints very fragile and break off easily, points nearly globular sometimes decidedly flattened dark green in color. Flowers pale yellow. Smallest of all Opuntias.

452a. Similar to O. Fragilis only grows larger. Found along the Gulf Coast. Probably the same plant but grows larger because of so much moisture.

453. **O. mackensenii**—Native of Texas. Low growing plant spreading branches, the lower edge of the joints usualy resting on the ground, occasional joint erect. Joints 4 to 8 in. long, orbicular to obovate. Flowers yellow with reddish brown center.

454. **O. macrocentra***—Native W. Texas to Arizona. This plant is rarely over 2 to 3 ft. high. Joints circular to oblong, reddish blue to purplish in color. The spines are usualy brownish or black in color, sometimes paler at tips, and two to five inches long. The flowers are yellow.

455. **Opuntia microdasy***—Covered with clusters of real fine spines. Sometimes called the polka dot or velvet cactus as spines are so fine that it looks like velvet. There are three varieties of these .The spines or Glochids being white, yellow, and red.

456. **O. erinocea***—The grizzly bear cactus. The flat pads bear long, hairy, white spines from desert of California. Flowers yellow to red.

456a.*—Similar to above but from New Mexico. Spines not quite so long and plants do not grow quite so large.

457. **O. flacosa.***

458. Spineless opuntia. *

459. **O. tardospina**—Low, spreading plant, the joints usually resting on the ground. Joints orbicular to obovate. The spines are brown or black in color, paler at tips and appear along the upper side of pad. Flowers are yellow.

460. **O. atrispina**—Native of Texas. The stems are low ascending, secondary stems mostly erect. Spines jet black at base, changing to orange at tips. Flowers yellow changing to orange, greenish in center.

461. **O. engelmannii** — Native Southwestern U. S. Northern Mexico. One of the commonest large-jointed erect opuntias. The joints are large, circular to obovate, sometimes 12 to 14 inches long, yellowish green in color and well covered with white to whitish colored spine from one to two inches long. The flowers are large and bright yellow.

462. **O. linguiformis**—Native of Bexar County, Texas. Commonly called the Cow's Tongue because of its long tongue-shaped leaves. Sometimes leaves are from 2 to 3 ft. long and from 4 to 6 in. wide. Plant obtains a height of 7 or 8 ft. Leaves are bluish-green. Flowers are yellow.

463. **O. aciculata**—Native of South Texas. Bushy plant with both horizontal and vertical branches. Joints are from 5 to 8 inches long, obovate, and dull green in color. Spines are slender, 1 to 3 inches long, often reflexed. Flowers are large and golden yellow in color with greenish center.

464. **O. lindheimeri** — Native Northern Mexico and Southern U. S. Very heavy erect growing with more or less definite trunk, joints green or bluish green, orbicular to obovate. Spines pale yellow to whitish, sometimes brownish or blackish at base. Flowers range from lemon yellow to orange and scarlet red. This plant is very variable in its form and habits.

465. **O. basilaris (Beaver Tail Cactus)**—Native of Arizona. This plant is low growing and spreading. Joints are wrinkled and spineless, and blue green to tan green in color. This plant has a velvety appearance due to the presence of fine surface hairs. The joints are narrow at base and wide at ends, resembling a beaver's tail, hence the common name, Beaver's Tail. Flower is purple.

466. **O. alcahes**—Native of Lower California. Cholla type plant bearing numerous white spines of a deceptive soft appearance.

467. **O. bravoana**—Native of Lower California. Beautiful smooth green pads bearing white spine clusters. Large yellow flower.

468. **O. clavellina**—Native of Lower California. A striking long jointed Cholla with remarkably long spines. Bronze flowers.

469. **O. pycnantha**—An interesting species from the wind swept sands of Magdalena Island. Flat joints nearly hidden by reflexed yellow or brown spines.

470. **O. Tesajo**—Native of Lower California. A rare low bushy, woody plant of the Ramoissima group. Flowers yellow.

471. **O. decumbens**—Small plant, smooth green pads with scattered areoles of yellow glochids bordered by white wool and surrounded by a purple spot.

472. **O. Elata elongata**—The orange tuna. A small plant with flat, spineless pads. Flower is orange.

473. **O. macroalyx** — Small, light green, spineless pads bearing white glochids. Flower is yellow.

474. **O. minima**—The white flowered O. Basilaris. It is smaller and daintier than the pink flowered one.

475. **O. monacantha variegata**—Thin flat pads beautifully variagated in white, green, pink, yellow flower.

476. **O. rodantha**—A hardy plant of the Basilaris group from high on the north rim of the Grand Canyon. Joints springing from the base bear long spines. Flowers are pink.

Thelocactus

(Sub-Tribe of the Genus Echinocactus)

477. **Thelocactus bicolor***—From Texas and Northern Mexico. Light green obovate body, slightly pointed at the top. The spines are medium and white with darker center. The flowers are purple.

478. **Thelo. bicolor tricolor***—From Old Mexico. Similar in form and habit to bicolor only having a more variagated spine coloring. The flowers are purple.

479. **Thelo. bolensis***—From Old Mexico. Similar to Bicolor but bearing only white spines. The flowers are purple.

480. **Thelo. buekii***—From Old Mexico. Flattish rounded top species with fine radial and short, stiff central spines. The flowers are purplish.

481. **Thelo. fosulatus***—From Old Mexico. One of the low types. The tubercles are flat and tipped with small spine clusters.

482. **Thelo. hexadrophorus***—From Old Mexico. Globular heads with small depressed spines. The flowers are purple.

483. **Thelo. Leucacanthus***—From Old Mexico. Globular head with medium spines of whitish color. Flowers are purplish. Propagates from side same as Echinopsis.

484. **Thelo. lophothele***—From Old Mexico. Small plant with light colored spines. Flowers are cream colored.

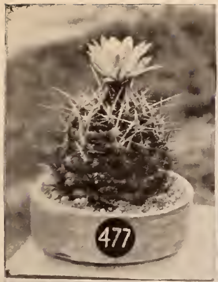
485. **Thelo. Megalothelos (Gymosalum)***—From Old Mexico. Round flat top type with pronounced tubercles bearing short radial and one long, white, downcurved central spine.

486. **Thelo. nidulans***—From Old Mexico. Flat to short conical in shape, grayish-green colored body, heavy wrinkled tubercles tipped with long, flattish gray spines. The flowers are rose.

487. **Thelo. tulensis***—From Old Mexico. More conical in shape, wrinkled tubercles and very few spines.

488. **Thelo. (Name unknown to me)***—From Old Mexico.

489. **Theo. Pineapple***—This is the only name under which I can identify this plant. Similar to No. 477 only a smaller plant with shorter spines. Flower is the same.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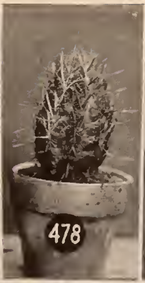
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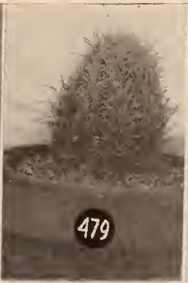
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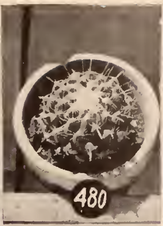
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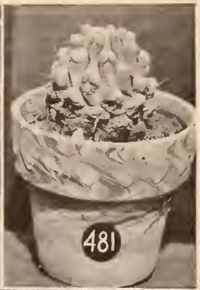
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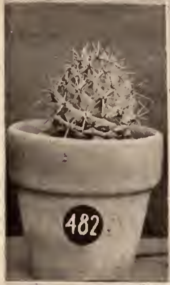
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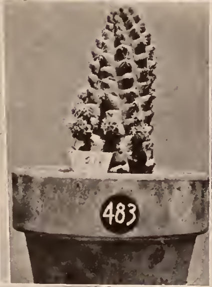
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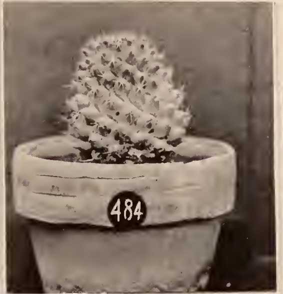
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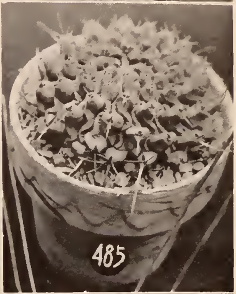
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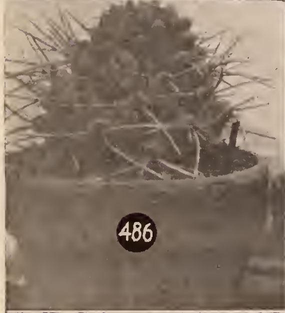
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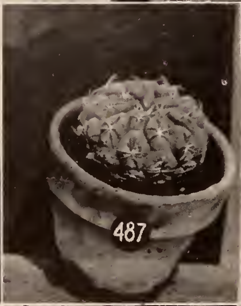
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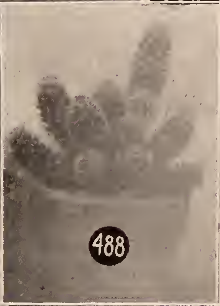
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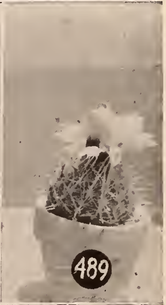
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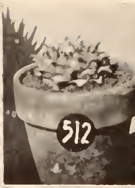
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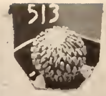
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Miscellaneous Page

176. **Echinocactus mondragona***—See description in Echinicereus list.

510. **Leuchtenbergia principia***—A very curious plant from Old Mexico. Heavy body with long, grayish green fingers, tipped with tufts of soft, flat spines. A beautiful bloomer and very rare.

511. **Ocatillo***—This plant is similar to E. splendins only it sheds its leaves in the winter and blooms before the leaves appear in the Spring. Grows to a height of 10 to 12 feet. The flowers are red and appear at the ends of the new growth.

512. **Obregonia de-negrii***—From Old Mexico. This plant is composed of layers of heavy, thick, scallop-like pads or leaves. Body very dark green. Flower white.

513. **Peleciphora asseliformis*** — From Old Mexico. This plant looks like a pine cone flattened out. No spines. A very beautiful and rare plant. Flowers are purplish.

514. **Wilcoxia poselgeri***—Native of South Texas. Stems are about the size of a lead pencil, olive green, and covered with a lacy network of delicate gray and black spines. Sometimes called the lead pencil cactus. The flowers are as large as a silver dollar and are deep rose to pinkish purple. Do well grafted.

515. **W. striata**—From Old Mexico. Very slender branches, bearing minute brown spines. Flowers are purple. The fruit is red with white spine clusters.

516. **W. australis**—From Old Mexico. A rare new species. Slender, very fine spined branches. Magnificent light pink flower with golden yellow stamens spirally coiled around the green pistil.

517. **W. senilis***—From Old Mexico. A very striking plant. The slender branches are covered with soft white hair. The flower is pinkish purple.
Picture shows grafted plants.

518. **W. viperina***—From Old Mexico. Very stout, soft spined branches. Red flowers.
Picture shows grafted plant.

520. **Lophophora williamsii (Peyote)***—From Texas and Northern Mexico. Space does not permit all to be said about this plant. There has been many books and articles written on it. It is known as the Mezcal Button by the natives, being used by the Indians as a ceremonial plant and is considered sacred by them. The plants are blue-green in color, biscuit shape and has small tufts of hair on the ridges. They grow from a carrot-shaped root. The plant is from one to four inches wide and about one to two inches high. The flower is pale pink. This plant seems to vary considerable in form.

523. **Bartschelia schumanii***—From Lower California. Forms compact clusters of low, biscuit shaped heads. Brown and whitte hooked spines, and pink flowers larger than plant. Picture shows a small seedling in bloom.

525. **Cochameia poselgeri*—(Mammillaria raesana)**—From Lower California. Forms clusters of tall heads bearing overlapping tubercle with long, hooked spines in each cluster. Scarlet flower shaped like Christmas Cactus flower.
Seedling pictured.

527. **Melocactus intortus**—From West Indies. This is a young plant about 6 in.

531. **Espostoa melonostele***—This is a seedling. A beautiful little plant. Looks very much like a ball of lint cotton.

535. **Rebutia miniscula***—Forms clusters of globular, deep green heads with short depressed, nearly white spines, beautiful scarlet flowers forms at the base of the plant as the picture shows.

540. Beautiful plant from Old Mexico.

543. **Cactus disciformis***—Odd looking plant from Old Mexico. Looks like a pineapple with no leaves at the top.

545. **Echinocactus turbiniformis***—From Old Mexico. Looks like a pine burr, only more oval and gray in soft color with a white flower.

PRICE LIST
(READ CAREFULLY)

In this price list numbers without price indicates stocks are sometime short and hard to obtain and will be best to write for prices before ordering. It is also hard to give the exact size of plants so I class them small, medium, and large. In clustering plants small ones are most always single and medium and large clusters you can judge the size of the plant by the illustration #195 is in a 4 in. pot and classed as medium. #190 is in a 6 in. pot and is classed as large. Most all of the smaller plants were snapped at the same distance, and sizes of pots run from 3 to 8 inches which will give you some idea of the size.

S for seedling C for cutting RC for rooted putting

NUMBER	SMALL	MEDIUM	LARGE
1	..15	.25	.50
2	.10	.15	.25
5	.10	.15	to .50
7		1.50	2.00
8		1.50	
9		1.00	1.25
10		1.50	2.00
11		1.50	2.00
12		1.50	2.00
15	.15	.50	1.25
16		4.00	5.00
17		4.00	5.00
18		4.00	5.00
19		4.00	5.00
20		4.00	5.00
21		5.00	
22	S .50 to 2.00		
22		4.00	to 20.00
23	S .50 to 2.00		
23		4.00	10.00
24			
25			
27	S .25		
28	.10	.50	1.00 up
28a	.25	1.00	
29	.35	1.50	
30	S .75		
31	S .25 & up		
32	S .35 & up		
40	S .50	2.50	10.00 up
41	S .50		
41a			
42	C .50 & up		
44	S .75		
45			
45b			
46			
47			
48			
49			
49a			

NUMBER	SMALL	MEDIUM	LARGE
50			
51			
52			
53			
54	.50	1.00	2.00
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68	S .50		
69	S .75		
70			
71	S .35 up		
72	S .50		
73	S .50		
74	S .35 up	Old Plants	3.00 per ft.
75			
76			
77	S .75 & up		
78	S .75 & up		
79	S .35 & up		
80	S .50		
81a			
81b			
82			
83	S .35 & up	RC .50 up	
84	.75	1.00	1.50
85			
86			
87			
88			
89		1.00 up	

NUMBER	SMALL	MEDIUM	LARGE
90			
91			
92	.50 & up		
93	.25	1.00	2.00
94			
95	S .50		
96	S .35 to .75		
97			
98			
105			
106	RC 12 in. 1.00		
107	S 3 in. .40		
108	RC .25		
109	S 2 in. .25		
110	RC .25		
111	S 3 in. .35		
112	RC .25		
113	RC .15 to .50		
114	RC .40		
115	RC .40		
116	RC .40		
117	RC .40		
118	RC .50		
119	RC .30		
120	RC /65		
121	RC .15 & up		
123	S .35 & up		
130	C .15		
131	C .10		
140	.10	.15	.25
141			
142		.10	
143	.10	.25	1.00
144	.50	.75	1.25
145	.10	.25	.50
147	.15	.25	1.00
148	.15	.25	.75
149	.15	.25	.50
150			
151			
152			
153			
154	.15	.25	.75
155			
to			
162			
163			
164			
165		1.00	
170			
171	.15	.25	.75
175			
176			
177		2.50	
178	S .25 to 2.00		10.00up
179	.10	.25	.50
180			

NUMBER	SMALL	MEDIUM	LARGE
181			
182	1.50	2.00	5.00
190	.15	.25	1.00
192	.15	.25	1.00
193	.15	.25	.50
194	.10	.25	.75
195	.10	.25	.75
196	.10	.25	.75
197	.10	.25	.75
198	.25	.50	to 5.00
199			
200	.10	.15	to 1.00
201			
202			
203	.25	.50	1.00
204	.10	.15	.50
205	.25	.50	1.00
206	..15	.25	
207	.10	.15	.75
208	.15	.50	1.00
209	.15	.25	5.00
210	.10	.15	.75
211	.10	.15	1.00
212	.25	.35	.75
213	.25	.50	1.00
214			
215			
216			
217			
218	RC .50		
219	RC 1.00		
220	RC 1.25		
221	RC .50		
222	RC .50		
223			
224	RC 1.00		
225			
226			
227			
228	.10 to .25		
229	1.00	5.00	
250	1.50	2.50	3.00
251	1.50	2.50	3.00
252	1.50	2.50	3.00
253	1.50	2.50	3.00
254	1.50	2.50	3.00
255			
256			
257			
258			
265	.25	.35	.75
266			
267			
to			
279			
284		.10	.25
285	.10	.15	.25

NUMBER	SMALL	MEDIUM	LARGE
286			
290		.10	.25
291			
292	.10	.15	.50
299 S .50			
300 S .25 to 2.00			
301 S .35 to .50			
302			
303			
304		.35	.50
305 S .50			
306		.50	.75
308			
309 S 1.00 to 2.00			
310		1.50	
311			
312 S .50			
313			
314 S..50			
315 S .50			
316	.15	.25	.50
318 S .50			
319	.50	.75	2.00 up
320		5.00	
321 S .50 & up			
322 S .50 & up			
340	.25	.50	1.00 up
341	.10	.15	.25
342	.15	.25	.50 up
343	.15	.35	..75 up
344			
345			
346			
355	.10	.15	.25
356	.10	.15	.25
357	.10	.15	.25
358	.15	.25	.50
359		1.00	
360		1.00	
361	.10	.15	.25
362	.10	.15	
363	.10	.15	
364	.10	.15	.25
365			
367			
368			
369			
to			
379			
380	1.50	2.50	
381			
382 S .25			
383			
384	.10	.15	.25

NUMBER	SMALL	MEDIUM	LARGE
385	.25		
386			
387 C .10			
388			
389 S .35		3.00	5.00
390			
391			
392	.50	1.00	2.50
393			
to			
398			
399		1.50	
400			
401			
402	.25	.50	
403			
404			
405			
406			
407	.25	.50	1.50
408		.75	1.50
409			
to			
423			
430	.15	.50	
431	.25	.75	
432	.15	.50	
433	.25	.75	
434	.15	.50	
435	.10	.25	
436	.15	.50	
437	.15	.50	
437a			
438	.35	.75	
439			
440			
441 RC .25			
446	/25		
447	.25		
448			
449			
450			
451			
452	.15	.25	.50
452a			
453			
455	.10	.25	.50
456			
457 RC .50			
458	.10	.25	.50
459			
460			
461			
to			
476			

NUMBER	SMALL	MEDIUM	LARGE
477	.10	.25	.50
478		.75	
479			
480		2.00	
481		3.50	
482			
483	.25		
484		2.50	
485		2.50	
486		2.00	
487		5.00	
488			
489	.10	.15	.25
176	1.00	1.50	
510		5.00	
511	.15	.50	1.50
512		2.50	
513		1.50	
514	.10	.15	.25
515 C .10			
516 C .15			
517 C .15			
518 C .15			
520	.10	.15	.25 Up
523 S .35			
525 S .35 & .50			
527			
531			
535			
543		2.00	
545		2.50	